THE BUILDER

Incorporating ARCHITECTURE & THE BRITISH ARCHITECT

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NEWS SUMMARY

THE FRHB new general specification for houses and two-storey flats has been discussed by house-builders. p. 455

OPPORTUNITIES FOR TEN ARCHITECTS in the design of timber-frame houses are described. p. 456

RESTRICTIVE PRACTICES involving cement, tools and plateglass are among the latest items to be referred to the Restrictive Practices Court. p. 458

A SPECIAL REPORT on the preservation of church timberwork and furnishings, prepared for the Central Council for Care of Churches, begins on p. 461

NEW LEGISLATION to allow local authorities to erect garages for letting to householders is expected. p. 470

A NEW CAULKING STRIP, claimed to be suitable for sealing any type of joint in building is described. p. 471

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BUILDING RESEARCH IN AUSTRALIA

AUSTRALIAN building research is scattered through eight establishments, two of which are directly for building research and development while most of the remainder deal with important individual aspects such as timber and soils, which themselves have wide applications outside building. All the work on building is supervised by a single committee, whose report for the years 1954-6 has recently been published.*

The total scope of study is now becoming fairly comprehensive. Foundations and structures have teams at work. So has the light-heat-sound group of subjects, and fire. Materials seem to be relatively strongly represented, and there are investigations of building design for factories and offices. No operational research seems to have begun yet, nor has any sociological work started. These are the two most obvious omissions; a lesser one is plumbing and sanitation.

The fact that no operational research has yet begun deserves comment. In Britain it was commenced about ten years ago. During the past five or six years it has rapidly been gathering strength and in the past two or three it has become one of the most powerful forces at work in the field of building, economics and management. It is one of the fundamental sources of economy and efficiency in the industry, and if this is not yet apparent to research establishments abroad, one hopes that they may soon realise its value.

Apart from this, the picture which the present report gives implies that timber, its use and its preservation, the associated problems of fire and foundation difficulties, figure outstandingly among the worries of Australian builders and architects. The Advisory Committee rather bewails the time the researches are taking. The Committee itself seems very representative of the industry, but do the research teams also include builders and architects, as well as the engineers and scientists obviously involved ? The feeling comes across from the report, from the very 'scientific' (in the narrow sense) sound of some of the work, that their teams may be over-weighted on the laboratory side. If that is the case in fact, they may very possibly wait quite a lot longer before the programmes begin to have a wide impact. The fire studies seem perhaps an example, for the development of test-methods is practically all that is mentioned in the report. Perhaps the reporting does less than justice to the work itself, but in this part of the document no impression is given of a designer's approach, which experience surely shows to be necessary for balance, direction and quick returns.

By contrast, the studies of materials, both in the laboratory and in practice, seem to have originality and a clear sense of direct significance. The deposition of dust on aluminium foil is examined and found to interfere seriously with efficiency; so rules for its successful use are formulated. There is no news of this being done in the United Kingdom. Gasket cork for floors, comparisons of timbers and concrete floor construction, studies of nailing, of timber roof trusses, of acoustic reverberation *in situ* all seem to show, like the aluminium foil study, a commendable grip on reality and a good sense of purpose. The same is true of the studies of decay and preservation in timber, where quite obviously excellent work is under way. Throughout the report, and especially in this section, the common touch is found and is refreshing; this is not always very easy to retain in a research atmosphere, but it brings great rewards in arousing popular and widespread awareness of the usefulness of systematic study.

A general impression which the report leaves is that research teams in one country seem to feel they must do what others have already done in another before they will commend it for home consumption. Repetition seems to be occurring, and if this is so, and is happening very widely, it must represent a

*Building Research in Australia, 1954-6; published by the Commonwealth Department of Works, 1957. Price 6s.

considerable loss in the utilisation of research resources. The report refers to a meeting of the directors of Building Research, and no doubt this will help to minimise waste. And of course the researcher often wants to check a finding in terms of local materials or customs; but for all the reasonableness of some repetition, the report leaves the feeling that a little too much of it may be occurring.

An astonishing item, at first glance, is the note from the Building Research Liaison Service of the Department of Works saying that it has been found possible to produce a *weekly* 'press release' article; but it is not so astonishing then that they find 'convincing evidence' that it builds up interest in the research 'which is reflected in the sales of research publications.' It seems a refreshing and excellent activity and strongly suggests that someone out in Australia really has the 'feeling' of the industry in his bones.

Notes of the Week

Positive Planning

EVEN the law-abiding will not feel other than a secret admiration for the citizen of Concordville, Pennsylvania, who (so to speak) took the bulldozer by the horns and used it to push into a ravine five garages which had destroyed a fine view from his home. Described as an interior decorator, Mr. Baeshore enlisted the assistance of a friend who not only pushed the offending buildings over the cliff but covered them with five tons of earth. Unfortunately for them, the tracks of the bulldozer betrayed these practical planners who, following an appearance in court, are now on bail. It is lucky, perhaps, that this sort of direct action is little practised in Great Britain, or there would scarcely be sufficient bulldozers left to do their normal job.

Honorary Fellowship, NZIA

MR. Kenneth M. B. Cross, MA, President, RIBA, and Mr. C. D. Spragg, CBE, Secretary, RIBA, have been elected Honorary Fellows of the New Zealand Institute of Architects.

BS 2660 Range of Colours

WITH THE MAIN OBJECT to agree a range that would meet most of the demands of architects and other paint users, British Standard 2660 'Colours for Building and Decorative Paints,' was published in 1956. It was not based on manufacturers' sales data, or on an arbitrary narrowing down of existing ranges, but on a thorough re-assessment of requirements. The chief needs were to select colours and set them forth so that good combinations could be found easily and quickly, and to have a palette moderate in size but capable nevertheless of a generous gamut of architectural expression.

A new BRS Digest (No. 101, August 1957, published price 3d. (5d. post paid) by the Stationery Office) helps considerably in making the flexibility of the Standard clear. Fashions in the use of colour in buildings are obvious, but these, of course, should be kept in perspective and not be allowed to prejudice judgments of what is appropriate. The range will be successful if it is found comprehensive enough to allow designers the scope they need without feeling themselves unduly restricted, but in this connection it should be remembered that paint is not the only colour medium at their disposal, and that personal preference for particular colours is probably less important than balance and comprehensiveness in the range as a whole. We gather that the Building Research Station would welcome criticisms, for it is intended that there will be a review of the colours every few years.

Illuminated Signs

NO FEATURE of a building can be relied on to arouse as much controversy as an illuminated sign, and there are indeed some who would have such signs banned even in their 'natural home' of Piccadilly Circus. The truth is, of course, that there are suitable and unsuitable places for illuminated signs, and their design, like that of any other man-made object, can be good, bad or indifferent. *Light and Lighting* is therefore performing a useful service in its September issue (obtainable from 32, Victoria-street, SW1, price 3s., post free) by presenting a comprehensive study of illuminated signs, which includes articles by an architect (Mr. Brian Westwood, FRIBA), a typographer and a sign manufacturer as well as showing examples from this country and overseas of up-to-date signs.

As Mr. Westwood says in his contribution: 'Proposals for the erection of illuminated signs are carefully scrutinised lest they should project too far or be insufficiently high above the pavement; their robustness is suspect and their size feared! It is not surprising, therefore, that for many years the design of illuminated signs has stultified.'

A visit to the City of London, Mr. Westwood adds, shows how well the early sign-makers did without the aid of illumination, and he emphasises that there is great scope for the design of illuminated signs of equal quality to some of these earlier signs. 'Nevertheless,' he declares, 'the situation is by no means static, and the illuminated sign is becoming more widely accepted as an essential part of the urban scene. In fact, many people are beginning to consider it as a major element in giving gaiety to our towns after dark—particularly after the shops have closed.'

PROPOSED BANK BUILDING, TRURO.—Work has been started on new premises for Martins Bank Limited in Truro. The main construction is a steel frame with precast prestressed flooring and roofs. The facing above the ground floor will be of Delabole slate with a natural slab face. Architects are Messrs. Taylor & Crowther, 66, Lemon-street, Truro. Work on the new building will be completed in the early part of next year

Some Recent Norman Architecture

AS SEEN FROM THE SADDLE

By Our Special Correspondent

THOSE interested in landscape, architecture and good food—or in any combination of the three—will find Western Normandy and the Seine valley above Rouen fully repaying a visit. Full appreciation of all three interests is much improved by the expedient of adopting the push-bike as the means of transport—being something which not only encourages stopping off to look at anything of interest but, no less important, gets one in on the ground-floor with a nation for whom the *Tour de France* is the greatest show on earth. To the car-cushioned mind, cycling 300 miles in 12 days may seem only a short stage removed from purgatory, but a simple calculation well within Dr. Watson's capacity shows that on average this amounts to three hours' cycling a day, no more—well worth effort if only for the reception '*Monsieur, comment il est sportif*' with which *la patronne* greets one at the end of a day's run, as she organises the kitchen for a meal worthy of a *chasseur*, or a bicyclist.

Rebuilding of Le Havre

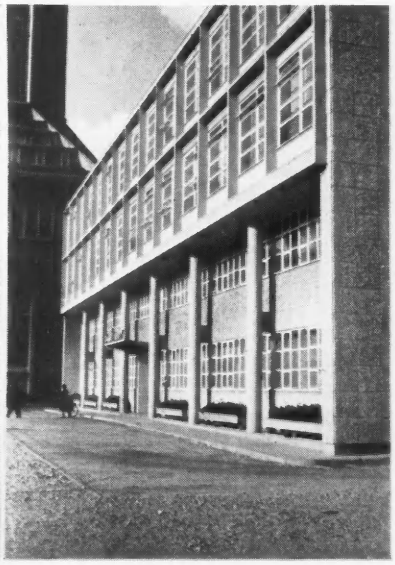
May or September are good months for this sort of ploy. The traffic, especially off the *routes nationales*, is light, the roads are good with some wonderful spins down into the little towns with (it must be added) corresponding climbs the other side sufficiently steep to make it simple to resist any temptation to ride up them.

West from Dieppe there is very little new in building of note. Some of the small watering places can rival their counterparts across the Channel in subtopia, but here and there, as at Etretat, there are buildings with some pretensions to style. Le Havre—so badly shattered that it becomes simple to understand why the French do not want a third war fought over their land—is the first city where developments on a large scale can be seen. Much of the work done in the immediate period after the war is by Perret whose two great concrete churches—singularly uninspiring externally but most dramatic inside, especially St. Joseph where coloured glass infilling produces a constantly changing kaleidoscope of colour—set the *motif* of renaissance. Austerity is the keynote to the architecture, but some of the more recent work shows more sensitive detailing. Private development is beginning to make its mark; some of the apartment blocks, gloriously sited above the Seine estuary, are good.

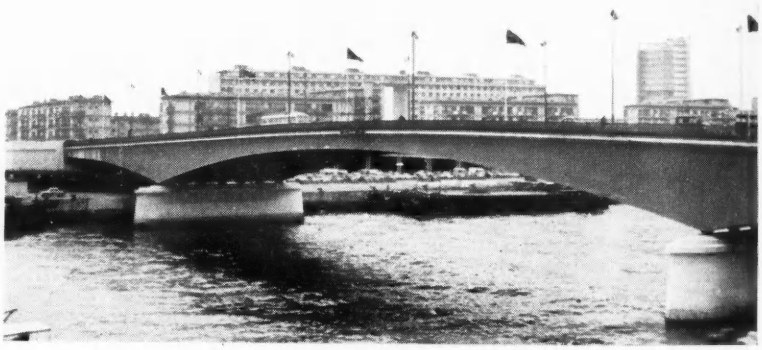
Crossing to Honfleur on the Calvados coast, hardly changed since the 17th century and with seemingly no new buildings since the war, it is pleasant to make one's way leisurely to Rouen by cycling down the Seine valley with its many Abbayes, remarkable for their intelligent custodians, crossing and recrossing by one or other of the numerous ferries which the Department kindly lays on without charge (there is no bridge crossing the Seine, of course, until Rouen is reached). To idle through the glorious Forest of Brôtonne is some compensation for the disappointment of Caudebec, badly hit during the war and rebuilt in a manner so insensitive as to speed the departure of the visitor.

So at last one comes to Rouen by the south bank which is no more pleasant than the industrialised Thames at Dagenham. There has been much rebuilding in the city, not only of buildings but of

LE HAVRE, devastated during the war, has been rebuilt largely in reinforced concrete. Its general appearance is somewhat 'surgical' in feeling as the upper photograph shows (Auguste Perret's church can be seen in the background), but sensitive detailing as shown in the lower views (left: municipal buildings; right: a clinic facing the waterfront) is noticeable in some more recent structures



ROUEN, which also suffered in the war, is busy rebuilding. The bank offices on the left are an example of the French flair for using reinforced concrete to achieve monumentalism without coarseness. The store in the centre manages continuous bands of glazing ingeniously. To the right is a sculptural block, Norman in feeling, which is one of four which mark the main span of one of the city's two new bridges. The second of these bridges, the Jeanne d'Arc, is shown to the right



WROT-IRON SIGN marking the entrance to the Atelier of the Ecole des Beaux-Arts, Rouen. Designed by a girl student, it depicts the Norman Saint Maclou

TWO NEW CINEMAS in Le Havre are shown below. Both are noticeable for design which is built round the name and for illumination by night

bridges, for both the main crossings were destroyed during the Normandy invasion.

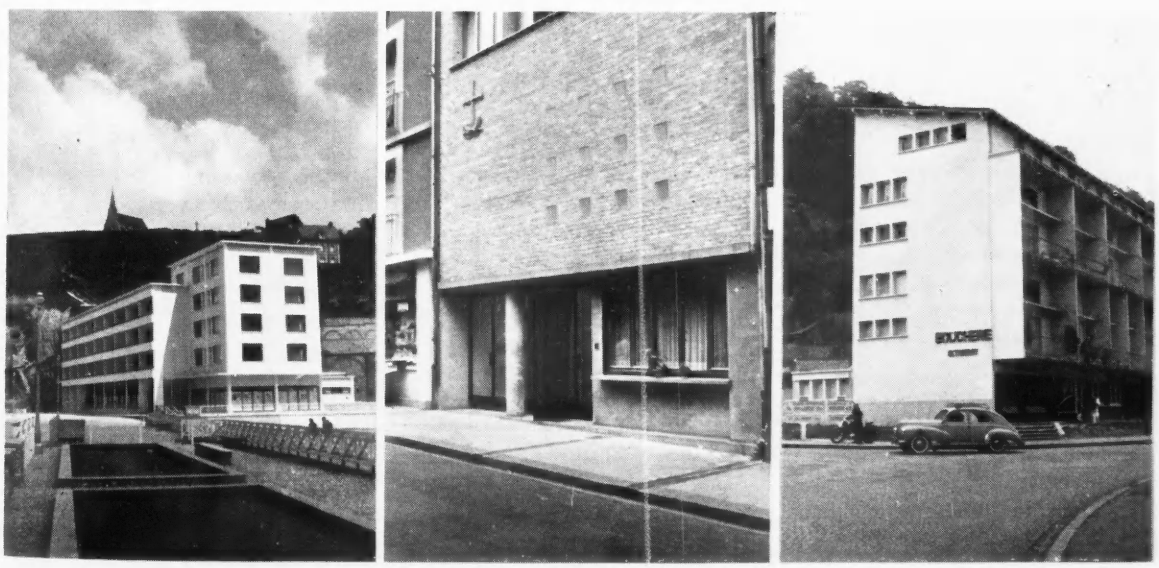
The Jeanne d'Arc bridge, in pre-stressed concrete, has a fine line for its single span across the river. The French genius for using reinforced concrete, in fact, is well displayed in this delightful town, whose Cathedral is now nearly fully repaired after bombing damage. Rouen has all the flavour of a port, which it is, and a county town. During your correspondent's visit, there was a Trade Fair in progress, largely devoted to exhibits of wines, furnishings (French middle-class taste in these is no better than elsewhere) and agricultural machinery. There were also some building exhibits, notably the coloured Perspex sheeting which is often used for roofing restaurant and café annexes.

Back to Dieppe by way of Yvetôt (where there is a most striking church designed by Lemarchand), Pont Audemer (a block of flats and shops, entirely successful, is illustrated) and the charming valley of La Scie where cider is made and sleek cattle provide a host of magnificent cheeses. Normandy assuredly provides food for mind as well as body.

I. M. L.

CHURCH AT YVETOT.—New buildings forward in character are rare in the smaller Norman towns. An exception is this reinforced concrete church at Yvetot in central Normandy designed by Lemarchand. Circular on plan, the roof is carried on an inner circle of columns which form an ambulatory. Infilling the external mullions is stained glass, light in hue, which gives remarkable lucency to the interior. The entrance is marked by a sculptural panel

New Buildings, Normandy



THREE NEW NORMAN BUILDINGS.—A block of holiday apartments at Etretat (left); a club for foreign Protestant seamen at Dieppe; and a block of flats with shops at Pont Audemer

PRINTING WORKS EXTENSION, Cambridge

North elevation

for W. Heffer & Sons, Ltd.

Architects:

H. C. HUGHES & PETER BICKNELL

Quantity Surveyor:

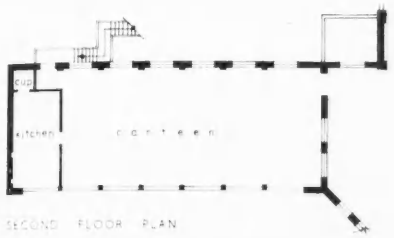
GEOFFREY A. LEWIS, FRICS

Builders:

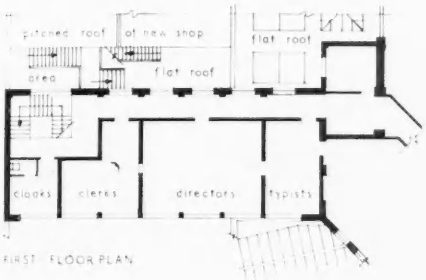
KIDMAN & Sons, Ltd.

THE extensions at the printing works of W. Heffer and Sons, Ltd., consist principally of a new office block with a new printing shop behind and include reorganising the heating system and the construction of a boiler house. The structure of the office block is in steel frame with in-situ concrete casings. On the main elevation pressed metal casings are used. Structural members are generally 8 in. by 4 in. stanchions and 12 in. by 5 in. beams, with precast concrete trough section floors and square-section beam roof. The floors were placed with metal hangers underneath to support suspended ceilings of acoustic board panels. This enables the floor levels to correspond with the existing building while providing good sound insulation. This was further helped by pouring the floor screeds on a fibre-glass quilt.

Floors are finished with wood block on the ground and first floors, and 'Granwood' was used in the canteen. Walls are plastered internally ; mild stock facing bricks are used externally with curtain walling containing 'Vitroslab' double-glass panels. Armourplate glass doors have been installed in the new main entrance, flush doors, faced with African walnut, are used internally. There is a certain amount of wall tiling by the entrance and beside the staircase, which is in African walnut.



SECOND FLOOR PLAN

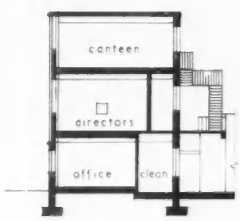


FIRST FLOOR PLAN

GROUND FLOOR PLAN

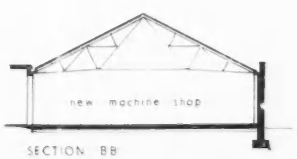
scale 10 5 0 10 20 30 40 50 feet

Main entrance



SECTION AA

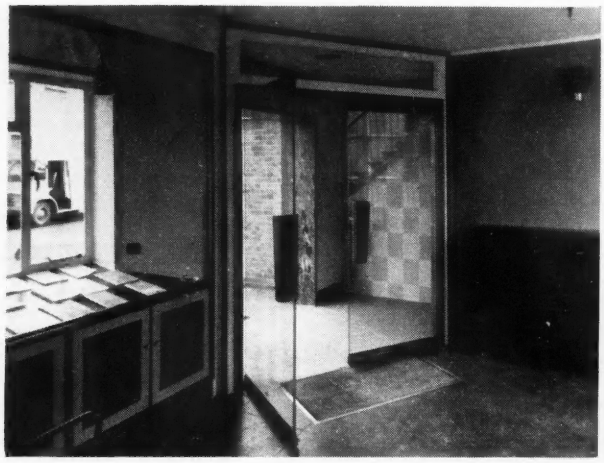
Canteen on the top floor



SECTION BB

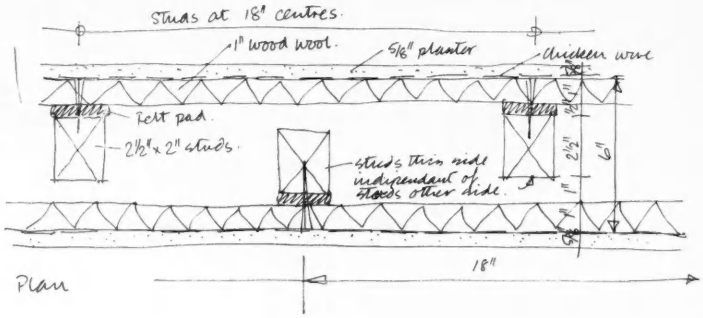
PLANS & SECTIONS

Scale: 1 in. = 32 ft.



Two views of the new main entrance

SKETCH DETAIL OF SOUND-INSULATED PARTITIONS ON THE FIRST FLOOR



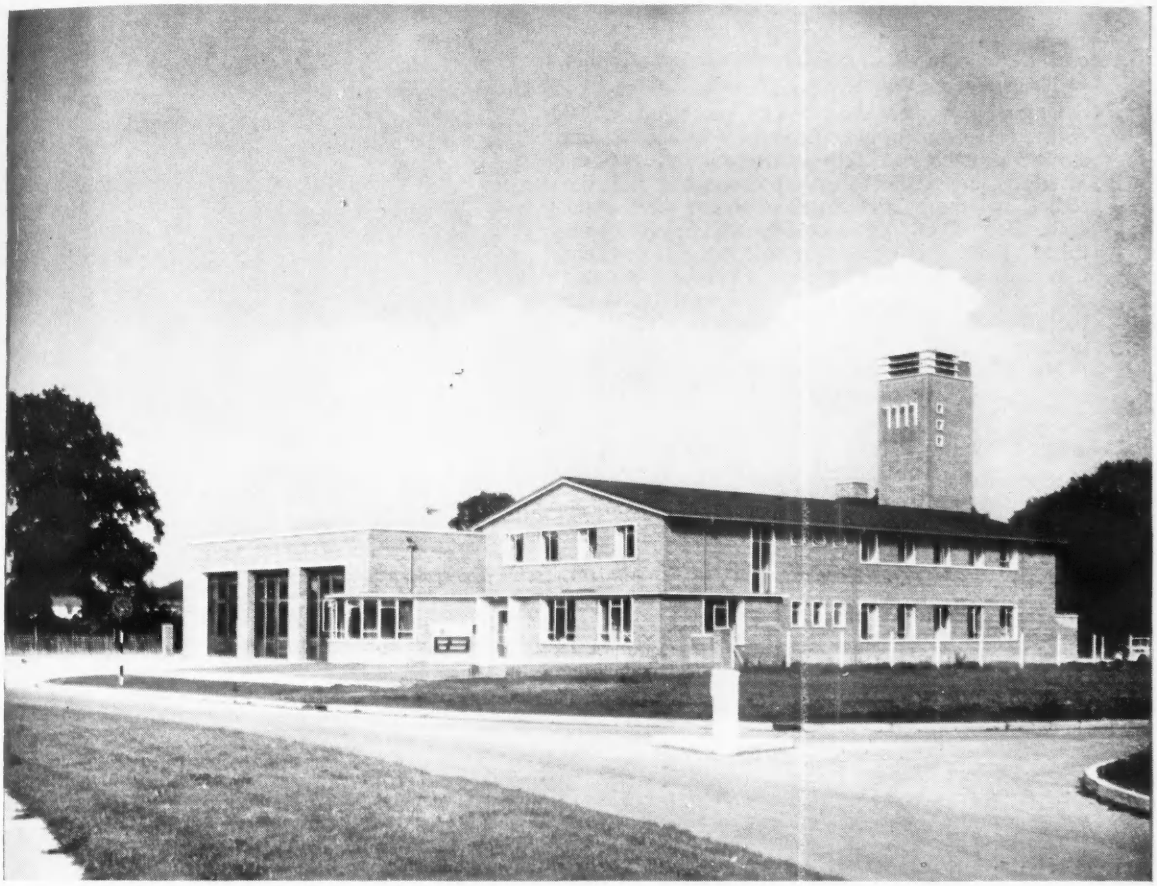
The staircase

Printing Works Extension, Cambridge

Subcontractors & Suppliers:—

Artificial stone, Cambridge Artificial Stone Co., Ltd.; facing bricks, Mild Stocks, Pratt (Watford), Ltd.; felt flat roof, D. Anderson and Son, Ltd.; floor of canteen, Granwood; Hornton stone, Hornton Quarries, Ltd.; marble, *Verde Issogue*, J. Whitehead and Sons, Ltd.; ironmongery, Alfred G. Roberts; precast concrete floor and roof beams, Siegwart; steelwork, including staircase support, Dawnays; wood block floors, Horsley Smith and Co.

Flush doors, Kidman and Sons, Ltd.; fire escape staircase, George Wright (London), Ltd.; metal windows, stanchion casings, Crittalls, Ltd.; 'Vitreslab' double glass panels, Plyglass, Ltd.; armour-plate glass doors, Charles Lightfoot, Ltd.; wall tiling, Carter and Co., Ltd.; sanitary fittings, Pratt (Watford), Ltd.; heating, Wontner-Smith, Grey and Co.; sprinkler system, Mather and Platt, Ltd.; electrical work, Eastern Electrical Co.; lift, Hoisting Appliance Co.



FIRE STATION, CRAWLEY, for West Sussex County Council

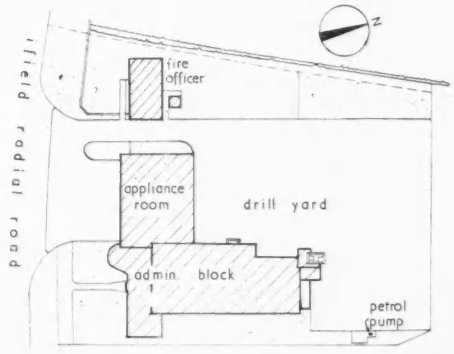
F. R. STEELE, FRIBA, RIBADistTP, FRICS, MTPI, AMIStructE, County Architect

B. PETERS, DipArch, ARIBA, Deputy County Architect

R. E. REED, ARIBA, AMTPI, Sectional Chief Assistant

HARRY TRINICK & Partners, Quantity Surveyors

JAMES LONGLEY & Co., Ltd., Builders



SITE PLAN. Scale : 1 in. = 96 ft.

THE STATION, situated at the junction of London-road and Ifield-avenue, commands a strategic position approximately mid-way between the town centre and the industrial estate, all parts of the new town and the surrounding rural district being easily accessible. The station cost approximately £33,000.

The building is of brick cavity wall construction, reinforced concrete floors and flat roofs covered with three-ply built up roofing felt, with a copper-sheeted insulated pitched roof over the two-storey portion. Bricks used are High Brooms hand-made sand-faced silver grey facings, London Brick Co. flettons and Sussex and Dorking Warnham first commons. The appliance room doors are constructed of West African mahogany with triplex safety glazing. The floor finishings include heather brown quarry tiles to the appliance room, kitchen and lavatories,

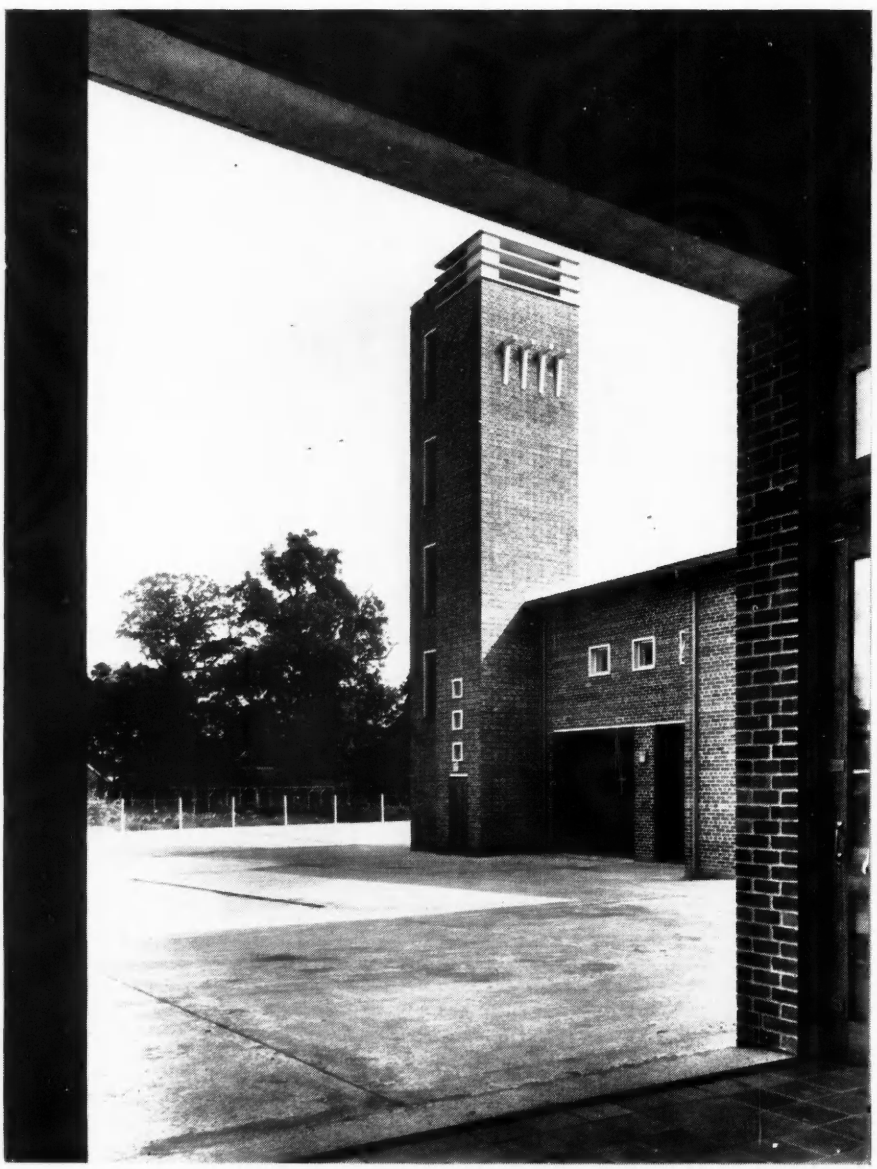
Fire Station, Crawley

cork tiles to the watch office, and thermoplastic tiles to the remaining rooms, corridors and staircase.

Decorations include emulsion paint on walls, decorative glazed cement dado in appliance room, stone paint on fair face concrete beam ceilings. Windows are standard metal casements and the sliding poles are cold drawn seamless steel outer casing 3 in. diam., over a cold drawn steel core $\frac{1}{4}$ in. thick. Heating is by low pressure hot water system pumped to radiators with electric blower hot water unit heaters in appliance room. Coloured lights over the appliance bays indicate the machine to leave; immersion heaters for pre-warming of engines are provided and an emergency lighting system operates certain lights throughout the station on alarm call.

Watch officer and indicator panel

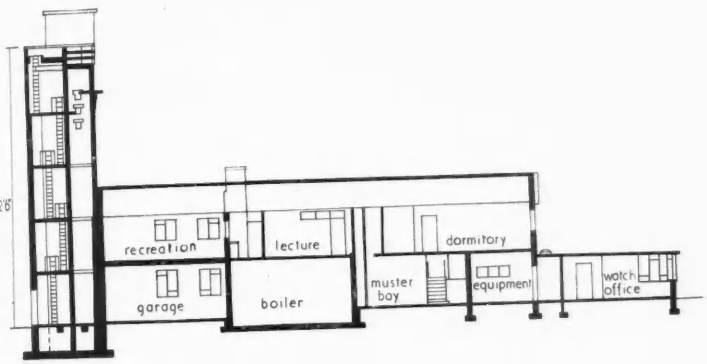
Hose drying and training tower



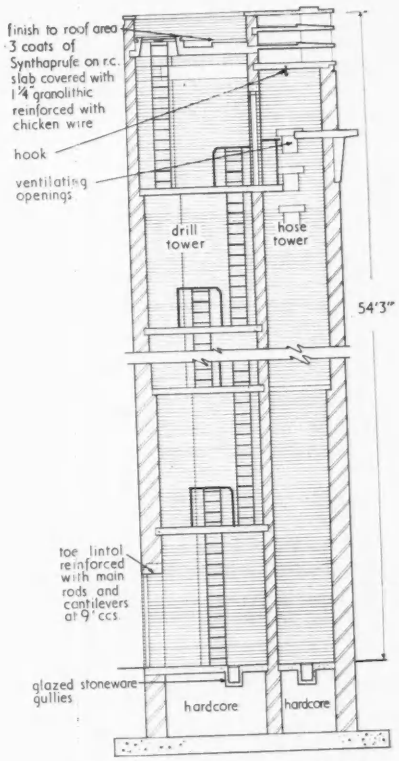
Subcontractors & Suppliers:—

Facing bricks, Richard Parton (Builders' Merchant), Ltd.; commons, London Brick Co., Ltd., foundations and load bearing bricks (Warnham hard-pressed), Sussex and Dorking United Brick Cos., Ltd.; artificial stone, Blokcrete Co., Ltd.; thermoplastic tile flooring, Marley Tile Co., Ltd.; ironmongery, Parker, Winder and Achurch, Ltd.; Perspex county shield and letters, Drakard and Humble, Ltd.; lightning conductor, William and R. W. Bacon, Ltd.; glazed cement wall finish, John Ellis and Sons, Ltd.; duct covers and frames, St. Pancras Engineering Works, Ltd.; insulated copper roofing and Perspex skydomes, Broderick Insulated Structures, Ltd.; flush doors, H. D. Sinclair, Ltd.; boiler house raft and tower foundations, Indented Bar and Concrete Engineering Co., Ltd.; gas installation, South Eastern Gas Board; cold water service mains, North West Sussex Joint Water Board; sliding and folding doors to appliance room, Esavian, Ltd.; electrical installation, Sharp and Bond; firemen's poles, Bunce and Co., Ltd.; petrol pump and tank, Wayne Tank and Pump Co., Ltd.; structural steelwork, James Couper and Co., Ltd.; precast hollow flooring and roofing, Concrete, Ltd.; heating installation and hot and cold water services, G. N. Haden and Sons, Ltd.; firepole mats, Sorbo, Ltd,; fencing, Durafencing (London), Ltd.; sanitary fittings, Standard Range and Foundry Co., Ltd.; metal windows and doors, James Couper and Co., Ltd.; cork floor tiling, Korkoid Decorative Floors; drying racks, Alfred Brown and Co.; ironwork, Hotchkiss Engineers, Ltd.; felt roofing and asphalt tanking, Ragusa Asphalte; paints, Goodlass, Wall and Co., Ltd., and The United Paint Co.

Pole circulation to muster bay



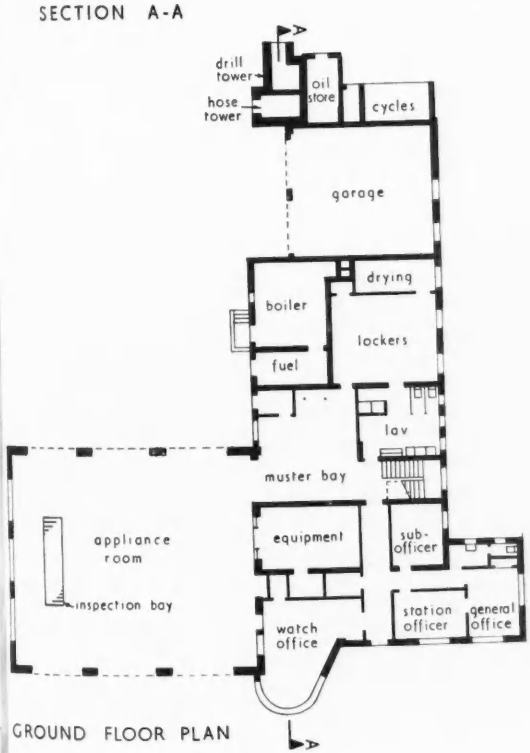
SECTION A-A


finish to roof area 3 coats of Synthaprufe on r.c. slab covered with 1¼ granolithic reinforced with chicken wire
hook
ventilating openings
drill tower
hose tower
54'3"
toe lintol reinforced with main rods and cantilevers at 9' ccs
glazed stoneware gullies
hardcore
hardcore

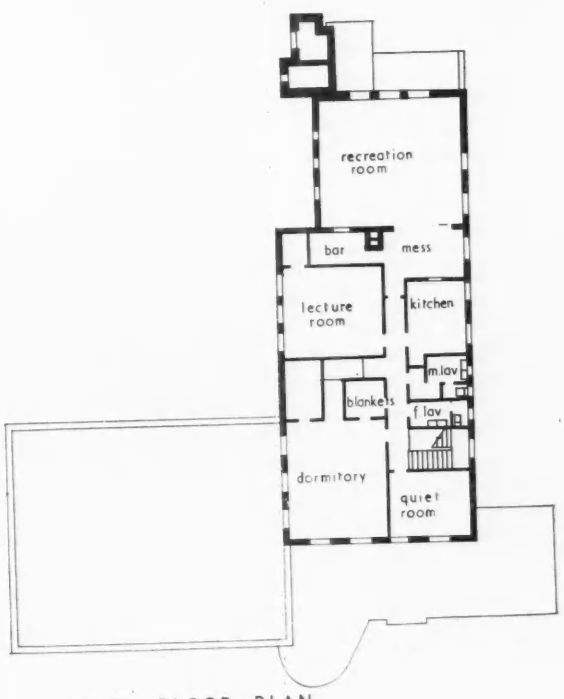
DETAIL SECTION OF DRILL AND HOSE TOWER

Scale : 1 in.=12 ft.

PLANS AND KEY SECTION,
Scale : 1 in.=32 ft.

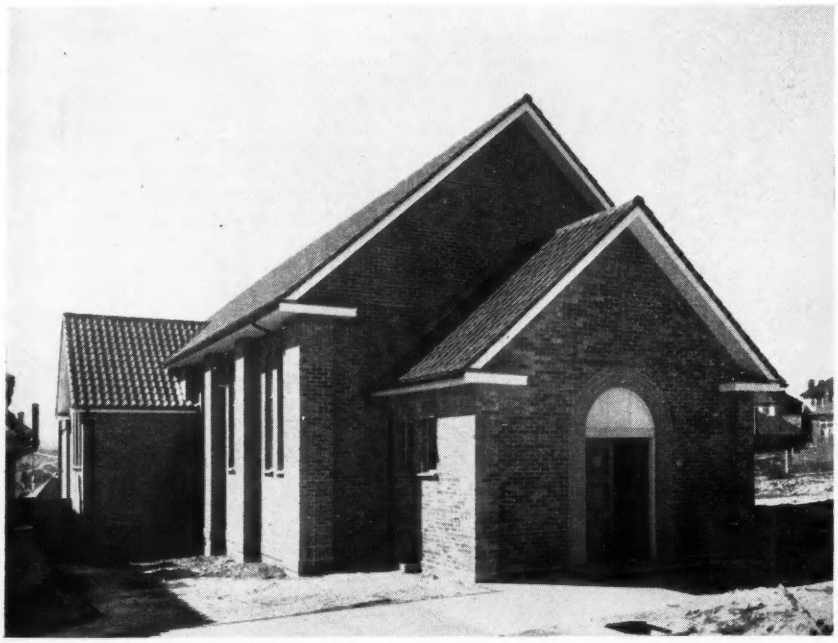


GROUND FLOOR PLAN



FIRST FLOOR PLAN

PRESBYTERIAN CHURCH of St. Martin, Saltdean,



From the south

Architects :
ANDREWS and
WINTON-LEWIS, FRIBA

THE CHURCH of St. Martin forms part of a group of buildings that includes a church hall and a manse. The architects for the latter two buildings, which were built soon after the end of the war, were Denman and Son, of Brighton. The church is designed to harmonise with the existing buildings and is completed externally, with the exception of some embellishments to the main entrance and the addition of a flèche which is to be built over the eastern end of the nave. The seating capacity of the church is intended for about 250 persons.

The church is constructed with load-bearing brick walls faced externally with Sealden stock facing bricks and some dressings of 'Roman' bricks and stone. The roof is covered with 'Ightham' bold roll red sandfaced pantiles. The interior is plastered, with the exception of the dado; it is intended that this will be panelled. The suspended ceiling is of 'Celotex' lined with fibre-glass. The floor of the bema is of Japanese oak stained and polished silver grey. The remainder of the floors are covered with linoleum.

The walls above dado height are a pale mediterranean pink with the exception of the Apse which is decorated pale blue. The ceilings throughout are light blue. Considerable attention was paid to acoustics; the panelling of the Elders' stalls received acoustic treatment and fibre-glass insulation, and the speaker of the electronic organ is concealed behind the arch over the bema. Dr. F. W. Alexander, BSc, PhD, the Sessions Clerk and Organist, acted as consultant with regard to acoustics, heating and lighting services.

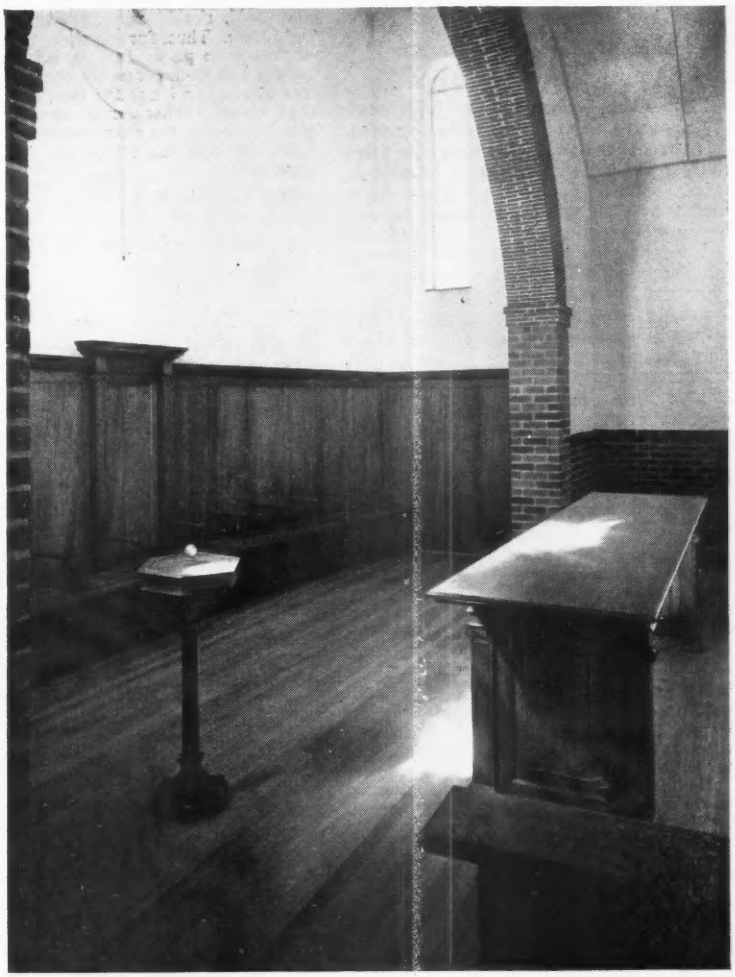
Subcontractors & Suppliers:—

Suspended ceilings, J. Chandlers, Ltd.; linoleum floor, Fludes and Co., Ltd.; structural steelwork, Matthew T. Shaw and Co., Ltd.; fitted furniture and panelling, S. F. Oakley; glazing, W. H. Goulding; roofing, Eastwoods; bricks, Sussex and Dorking United Brick Companies, Eastwoods, Ltd.; oak flooring, Bensly, Ltd.; ceiling, Celotex, Ltd.; windows, Brunswick Metal Casement and Engineering Co., Ltd.; roofing tiles, Ightham Brick and Tile Co., Ltd.; paints, International Paints, Ltd.; distemper, Walpamur, Ltd.; light fittings, Falks; communion table, font, etc., S. F. Oakley; electronic organ, Martinet Electric Organ, Millers.

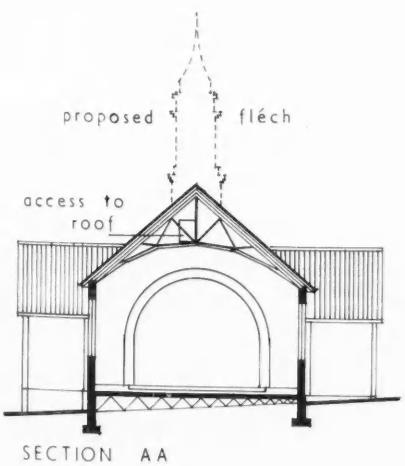
From the north

Brighton, Sussex

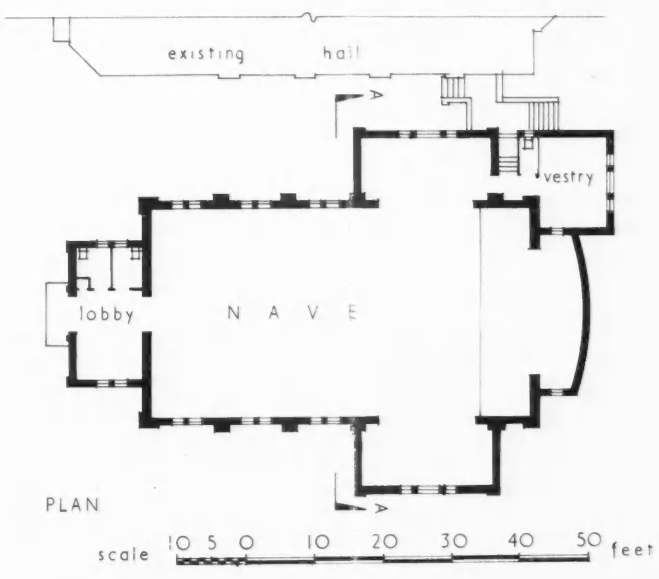
Builder :
A. ALLDRITT



The communion table and font with the Elders' stalls behind



PLAN AND SECTION
Scale : 1 in.=24 ft.



CORRESPONDENCE

'Dull Modern Architecture'

To the Editor of *The Builder*

SIR,—Well bowled 'Spero'! It needs a much abler nib than mine to answer his reasoned letter. This being so, I will only make a few comments on it. He says: 'Building today is largely dominated by structural engineering massed-produced components.' Admitting this, the results may well be termed Meccano architecture and the present time the Meccano period, for that is what it amounts to. To these great office blocks surely a little dignity might be added to the main entrances, to denote their character or purpose by using some characteristic piece of sculpture. What says the President of the RA, Mr. Charles Wheeler?

To clinch or verify the truth of this remark I quote a most able contribution from the *Sunday Times* correspondent:

'Cologne has had a new birth, but the once-gracious city on the Rhine has lost its former dignity. Everywhere slick office buildings proclaim the architecture of the giant soap-box, with endless windows cut to one utility pattern. We had seen this in Brussels, too. The uglification of Europe is in full process—or so it seemed until we reached Frankfurt.

'There the mayor hospitably sent his deputy to show us the rebuilding of the city after its virtual destruction. Wisely the city fathers decided that it was not enough merely to build houses and flats, desperately needed as they were. The necessities of the moment, they held, should not deny the claims of the future. Thus, for example, when blocks of flats were planned in the neighbourhood of the almost-unharmed cathedral, nothing was allowed to block the view of the cathedral spires. Wherever it was possible to give horizon to the open spaces it was done. There is no monotony nor feeling of repetition.'

Need I add more?

W. J. WILLS.

2, South Leigh, Dorking.

'Do you get the same trouble with your *assistants—some modern, some traditional* ?'

To the Editor of *The Builder*

SIR,—My letter in your issue of August 23, on which Mr. McMorran commented briefly last week, was not so much intended to 'defend' contemporary architecture as to account for it to your correspondent, Mr. Wills. I suggested that he was being unfair in judging it by aesthetic standards that cannot reasonably be applied to it. Why should we expect a structural frame faced with cladding or curtain walling to have the same visual qualities as traditional work? It is like expecting a modern battleship to look like the *Victory*.

May I ask Mr. McMorran whether he would expect the Festival Hall, for example, to repeat the conventions of elevational design appropriate to St. Paul's? Surely two such different structural systems demand different elevational expression?

May I correct Mr. McMorran on two points? First, I did not say that 'modern architecture has no use for composition, proportion, symmetry, solid and void, light and shade, etc., etc.' The meaning of my reference to these and other qualities is perfectly clear from the context, i.e., that the principles on which façades of traditional construction and materials used to be designed do not apply to the sort of work we are considering. Can any architect put his hand on his heart and say that he applies them when he is designing (if that is the right word) 100 ft. or so of flat repetitive prefabricated elevational cladding?

Second point. I did not say that 'most contemporary building compared to the work of the past is like a transport café to the Ritz.' I said 'we should not expect Ritz standards when we are only prepared to pay the price of a good pull-up for carmen.' Mr. McMorran has taken a bit of imagery literally. Nevertheless, it remains broadly true, in building as in much else, that we get what we are prepared to pay for. If Mr. McMorran's own work (of which I have long been an admirer) is not in some degree affected by economic considerations then his experience is exceptional, and I congratulate him.

SPERO.

Dating of Trade Literature

To the Editor of *The Builder*

SIR,—It is a fashion imposed by circumstance to reject manufacturers' literature that does not comply, for size, with the relevant BSS.

Is it not time that catalogue publishers and other persons responsible for the distribution of trade information appreciated the advantages of dating all publications? All too often we find price lists tucked into a catalogue, bearing no date but usually stating that 'previous lists are cancelled.' Samples also are rarely dated.

A simple system of dating would enable architects and contractors to eliminate much dead material and would ensure a place for the up-to-date information.

JOHN K. PARKER [ARIBA].
Nine The Crescent, Wisbech, Cambs.

Defective Materials

To the Editor of *The Builder*

SIR, — Your recent leading article in which you refer to the inadequate building that is often done to-day, and the letter from a correspondent about badly-fixed gates and the structural damage they do, prompt me to call attention to another matter that needs attention—the great amount of defective reinforced concrete posts and wire fencing that is seen nowadays enclosing the gardens of private houses and public open spaces, particularly in suburbia.

Many of the posts, though put up only a few years ago, are already disintegrating through the rusting of the reinforcement, which has spalled off the thin concrete covering. Is this due to bad design or bad workmanship, or both? Chain-link fencing, too, appears to rust far too quickly. Much of it will need replacing in a year or two if it is not soon treated with some sort of preservative.

Manufacturers of these materials should improve their products, which, already none too popular in many quarters, will otherwise run the risk of becoming discredited.

ANOTHER LAYMAN.

'Building as a Public Service'

To the Editor of *The Builder*

SIR,—In the Editorial in your issue of September 6 you ask: 'Is the businessman's desire for financial profit any different in principle from the operatives' demand for wages?' and go on to say that you think not.

In so far as your question is philosophical or psychological you may think rightly, but economically your thinking is well off the beam.

'Ownership management' accounts for less than 20 per cent. of British industry. For wages or salaries, finance capital hires managers, etc., to supervise its businesses and workers to operate them. Finance capital, by monopoly where possible, seeks maximum profits. Profits do not require the financier to work to earn them. Capital, cash over and above what the financier requires to satisfy his immediate needs, earns interest, i.e., further cash, whilst the financier and his family live a sweet and easy life in, say, Bermuda, Monte Carlo or wherever is the fashion for financiers to live at any particular time.

The operative, however, *must* sell his labour power, or starve or, semi-starve on a pittance called 'dole,' 'public assistance' or 'charity.'

Wages and profits cannot be compared. They are opposing opposites, poles apart. 'Kidology' will do you, your paper and your readers no good. Face the facts!

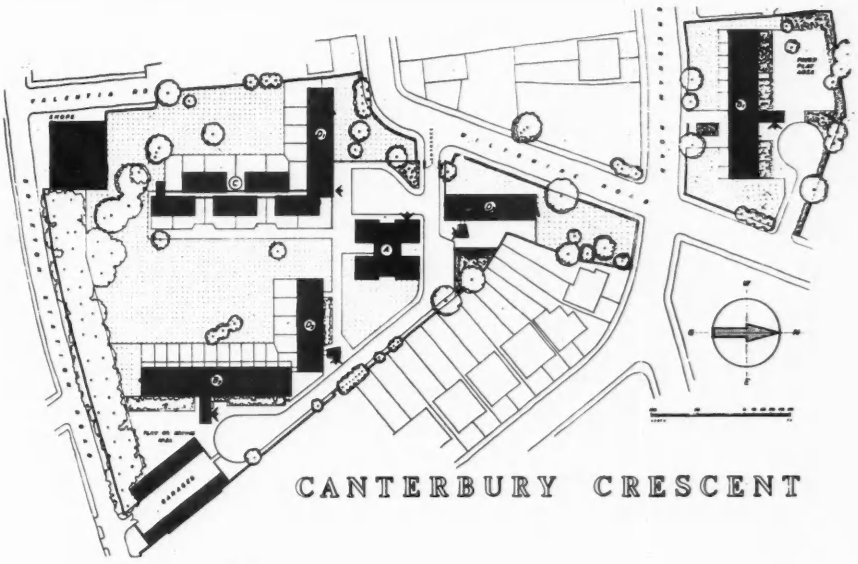
P. R. ELDERFIELD.
128, Mains-street, Thringstone, Leics.

PROJECT:

HOUSING DEVELOPMENT
for the Metropolitan Borough of Lambeth

Architect :
HARRY MONCRIEFF,
FRIBA, AMTPI

C. C. CARTER, FRICS
Director of Housing



DETAILS were published recently of a scheme for a new housing estate at Canterbury-crescent, Brixton, by the Metropolitan Borough of Lambeth. The site is about five acres in area and has a density limit of 136 persons per acre.

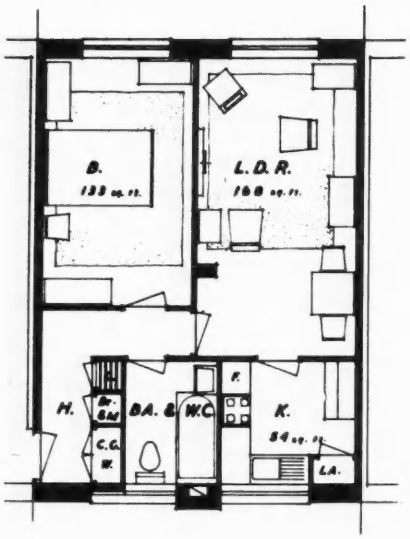
It has been decided to have only one tall block, ' A,' to be 16 storeys high, and only 60 ft. square on plan. It will contain 57 flats of type 5 (see plans opposite), 644 sq. ft. in area. Grouped around block 'A' are three four-storey blocks, 'D,' with type plans 4 and 1. Type 4 is a three-bedroom maisonette of 880 sq. ft. ; Type 1 is a one-bedroom flat of 484 sq. ft.; there being 28 of the former and two of the latter. To the south is block ' C,' four storeys and block ' B2,' six storeys. Block ' C ' contains 40 one-room flats, Type 6, of 423 sq. ft.

Block ' B2,' which is identical with 'B1' to the north of the site, contains plans Types 3 and 2, a bed-sitting-room flat of 325 sq. ft., and a maisonette with two bedrooms of 696 sq. ft., respectively. These two blocks have a total of eight Type 3 and 64 of Type 2 in all. The estimated cost, including four shops, drainage and electric floor heating, is £493,000.

Perspective from the north-west

Housing Development, Lambeth

Type Plans



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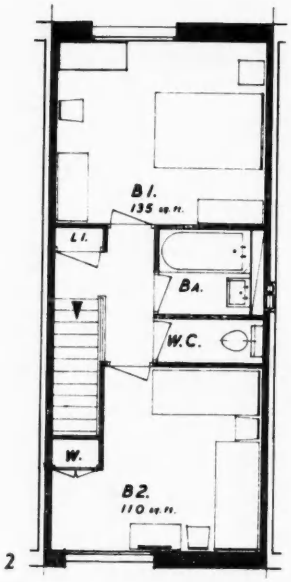

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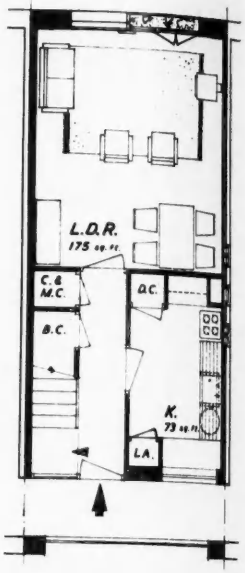
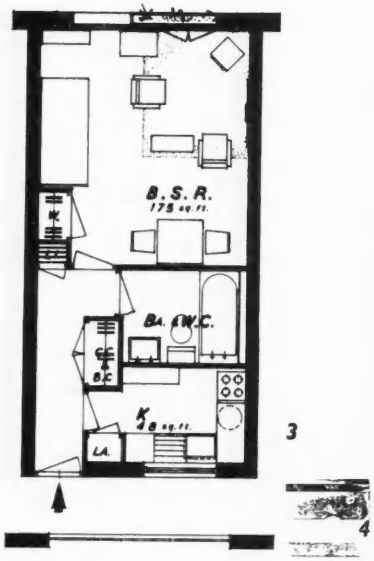
BEDROOM FLOOR



LIVING FLOOR



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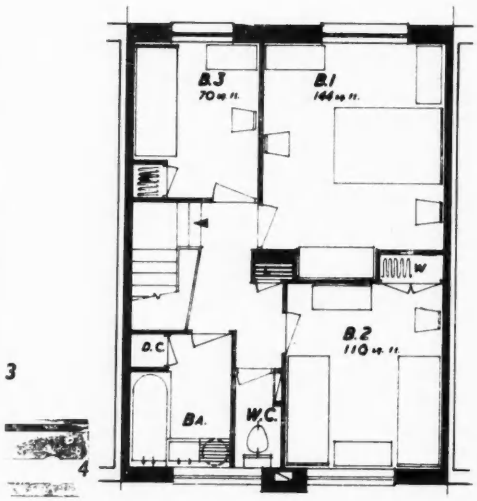

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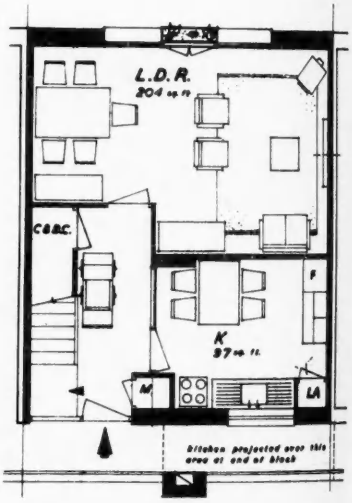

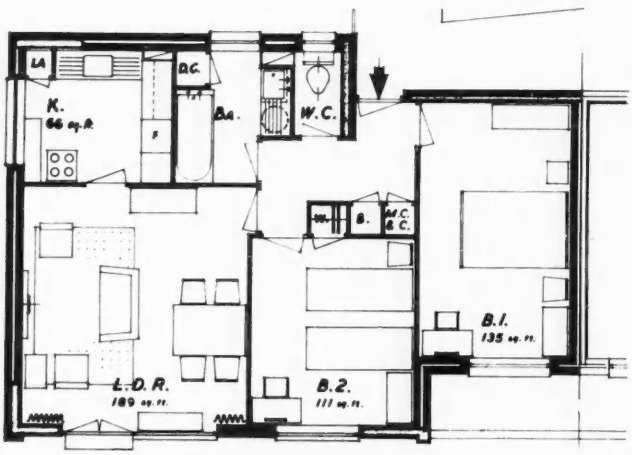

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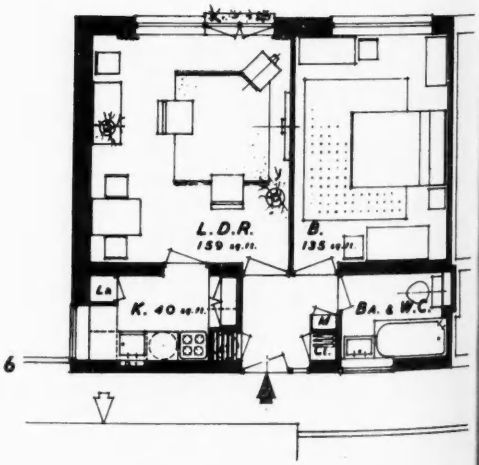

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News of the Week

Future of Dorset Manor House

MR. HENRY BROOKE, Minister of Housing and Local Government, has told Dorset County Council that he thinks further time is desirable for inquiries into the possibilities of a new use being found for the Old Manor House, Kingston Maurward, near Dorchester, which the Council, as owners, wished to demolish on the grounds that they had no use for the building themselves and that in their view a use cannot be found which would not conflict with the activities of the Dorset Farm Institute, in whose grounds the building stands.

The Minister has told the Council that, subject to considering any representations which they might make to him in accordance with their statutory rights, he proposes to make a building preservation order on the house. He has pointed out that the exterior of the house is a largely unaltered example of a moderate-sized, stone Elizabethan manor house, retaining unchanged most of its original mullioned fenestration, and that the west façade is of particular importance as an unspoiled example of the period.

Trinity College, Cambridge

THE FIRST MAJOR WORKS to be carried out by Trinity College in the present century will consist of additional living accommodation for undergraduates. Three upper floors of the Trinity-street buildings are to be reconstructed with steel framework and precast floor units and a wing block three storeys high will be rebuilt. Modifications will also be made to the storage premises of the shops fronting Trinity-street which will enable a new court to the buildings to be made.

The work, which is estimated to cost over £100,000, will call for considerable care in the preservation of the old walling and façade to the street. The consulting engineers and architects for the work are Husband and Co., 388, Glossop-road, Sheffield and J. Youngs and Sons, Ltd., of City-road, Norwich, are the contractors.

'Patterns on the Floor'

IN RESPONSE to requests from British carpet manufacturers, the Council of Industrial Design has arranged a fortnight's tour of Northern Italy for a party of more than 20 carpet designers. The party, with Mr. Mark Hartland Thomas, OBE, FRIBA, MSIA, formerly Chief Industrial Officer at the CoID, as guide-lecturer, left London on Saturday, September 7, and return on September 21. Visits will be made to the Triennale exhibition, and to modern flats, offices, stores, showrooms and studios, as well as to places of historical interest.

The object of the tour is to give carpet designers an opportunity to take advantage of the visual stimulus that a planned tour of a country with as much artistic vitality as Italy can give. Running through the whole programme is the theme 'patterns on the floor.' These will be found sometimes indoors and sometimes out of doors and will be looked at from the point of view of their contribution to the architecture as a whole. At the same time, problems and solutions in other fields of design will be considered and discussed with Italian architects and designers.

Higher and Higher

LIVERPOOL CORPORATION is so short of building land that it is now extending its programme for building flats of many storeys in height. Some time ago 11-storey flats were planned and are well under construction, but the housing committee is now considering plans for the erection of flats of 17 and even 21 storeys.

This is in connection with the central area re-housing developments, and Ald. D. Nickson, the housing committee chairman, says they are thinking on these lines if the Government will allow them to build. He says: 'This form of development is obviously the only answer to "sprawl" and if we are to keep our central area population this is the only solution. The 11-storey flats which are going up are insignificant when considered against their background.'

New Use for Rushton Hall

THE Ministry of Works is to acquire from Northamptonshire County Council a large mansion house, Rushton Hall, near Kettering, with some adjoining land, and repair and convert the building for use as a school for the Royal National Institute for the Blind.

Rushton Hall is a large, many-gabled stone building faced with ashlar. It was begun about 1490 by John Tresham, whose family still owned the building at the time of the Gunpowder Plot, in which they were involved. The Great Hall in the south range contains many features dating from the original building.

Appointments Open

WALTHAMSTOW BC invite applications by October 5 for the post of Deputy Borough Architect. Salary £1,295 to £1,515 per annum.

APPLICATIONS are invited by September 30 for the post of Lecturer in the Department of Architecture at the Royal Technical College of East Africa (Nairobi). Salary £1,215, rising to £1,709. Details advertised elsewhere.

FROM 'THE BUILDER' OF 1857

Saturday, September 12, 1857.

CLUSTERING OF BUILDINGS.—There is in the commercial centre of the City but little space, and that little is so much augmented in value, that there is no law nor reason for restraining the proprietors of old houses from pulling them down, nor from reconstructing them in any increased number of stories. We see narrow frontages under 20 feet raised seven stories high! The light is reduced, the air stinted; but there is no help for it, unless the expedient of a windsail, such as ventilates ships' holds, be hung in narrow streets.

The inheritors of the next generation must, when raised in so many storied flats, find themselves, whilst soaring higher in flights, most inconveniently packed in their swarms.

Q.

NEW OFFICE DEVELOPMENT, PADDINGTON.—An architect's drawing of the new office development at Eastbourne-terrace, Paddington, W2. The scheme includes units of two, six and ten storeys, with an eighteen-storey 200 ft. high tower block. The architects are C. H. Elsom and Partners; the quantity surveyors, Cyril Sweett and Partners; the consulting engineers, Clarke Nicholls and Marcel; and the builders, Tersons Ltd. Work began at the end of May last and the scheme is due for completion by December, 1958—one of the fastest contracts since the war, it is claimed

COMING EVENTS

TUESDAY, SEPTEMBER 17.

INSTITUTE OF BUILDERS (Licentiate Discussion Club).—'What Have We to Learn from the United States?' By P. E. Trench, OBE, TD. 48, Bedford-sq., WC1. 6.30 p.m.

HOUSING CENTRE TRUST.—Annual Meeting. 'The Best of Both Worlds: Decentralisation and Redevelopment as a Combined Operation.' By Sir William Holford, FRIBA. 13, Suffolk-st., SW1. 3.30 p.m.

WEDNESDAY, SEPTEMBER 18.

ASSOCIATION OF MUNICIPAL CORPORATIONS.—Annual Conference. White Rock Pavilion, Hastings. 11 a.m.

LONDON BUILDING & ENGINEERING CONTRACTORS' ACCIDENT PREVENTION GROUP.—General meeting 'Goliath and Tom Thumb.' By R. D. Carter-Pedlar, MA. Safety Centre, Horseferry-rd., SW1. 2.30 p.m.

PLANNING FORUM.—'How Planning Affects You.' Visit to Hendon Borough Council. Coach leaves Baker-street at 6 p.m.

SATURDAY, SEPTEMBER 21.

INSTITUTION OF STRUCTURAL ENGINEERS (London Graduates' and Students' Section).—Visit to Bowaters, Northfleet. 9 a.m.

CRICKET

RIBA Draw with CCC

IN their last game of the season, the RIBA Cricket XI drew with the Club Cricket Conference. The match, played on the Wimbledon ground on August 28, was marked by some excellent batting by A. H. Brown and G. Atkins for the CCC, and by Graham Fyson and D. L. Robinson for the architects. Although the RIBA tried hard to get the runs after tea, accurate bowling by T. Burton, who had a hand in every wicket that fell, prevented them, and Roger Norton and D. A. Stevens managed to make a draw of it with one wicket in hand. Scores:

CLUB CRICKET CONFERENCE

A. H. Brown c. Edwards b. Norton ..	81
G. Atkins run out	38
B. Wooton c. Banfield b. Morris ..	5
B. Atkins c. and b. Robinson	6
T. Burton c. Batty b. Morris	26
D. Hollands run out	18
R. Ormes not out	7
A. Goodall c. Banfield b. Stevens ..	1
R. Hill b. Stevens	1
R. Phipps did not bat	
C. Davies „ „ „	
Extras	1
For 8 wickets dec.	184

Case 0 for 28, Stevens 2 for 39, Robinson 1 for 55, Morris 2 for 54, Norton 1 for 7.

RIBA

A. E. J. Morris c. Hill b. Burton ..	17
J. G. Batty b. Burton	0
C. G. Banfield b. Burton	0
J. Seward lbw b. Burton	17
G. Fyson c. G. Atkins b. Burton ..	59
D. L. Robinson c. and b. Burton ..	28
R. Case b. Burton	19
C. A. R. Norton not out	15
L. G. W. Bishop c. Burton b. Hill ..	0
M. C. Edwards b. Burton	2
D. A. Stevens not out	0
Extras	8
For 9 wickets	165

Burton 8 for 39, Hill 1 for 42, B. Atkins 0 for 29, Phipps 0 for 33, Davies 0 for 14.

TIMBER FRAME HOUSES

Architects Invited to Submit Designs

FOLLOWING initial publicity given to timber frame construction for housebuilding, the British Columbia Lumber Manufacturers' Association has heard from over 250 architects interested in designing such houses. The Association has accordingly decided to sponsor a country-wide development plan to demonstrate that timber framing, as a basic technique, can meet varying consumer needs at competitive cost and at the same time give architects scope to use a wide range of materials in conjunction with timber to create efficient, agreeable, purpose-made homes.

In consultation with Mr. Martin Wells, co-designer with Mr. D. R. Hickman of the Canada Trend House shown at the Ideal Home Exhibition this year, Mr. G. C. Edgett, timber development director of the BCLMA, has propounded ten design problems which architects in this country are invited to solve. The 'problems' are the practical living and aesthetic requirements of ten typical home seekers in 1958.

Clients are visualised as belonging to different income groups. Each of the ten houses must be the appropriate answer to neighbourhood needs and show congruity with the imaginary client's status, standards and likely preferences.

How the Scheme Will Work

Any practising member of the RIBA is eligible to take part in the project and while final details and rules for participants are being worked out, interested designers are invited to communicate with the Timber Development Director of the British Columbia Lumber Manufacturers' Association at Canada House, London, SW1, so that their names may be added to the list of architects from whom the ten demonstration planners will be selected.

As at present envisaged the development scheme will cover houses designed for ten growing centres of population in different parts of the country. Designs may be for bungalows, two-storey houses or split-level dwellings. Full use may be made of brick, stone and other materials in combination with a structural timber frame.

Architects responsible for the project houses will receive from the BCLMA a fee in accord with professional scales for the initial work undertaken and thereafter a royalty will be payable by clients on each reproduction of their designs. A special illustrated publication featuring the ten houses will be widely distributed by the BCLMA and other publicity measures adopted to arouse public interest in made-to-measure frame houses. Prospective buyers will be advised to engage a qualified architect in an advisory capacity, even where a design already published has been chosen.

Design fees will be paid to architects in the customary fashion, but should any successful project house designer wish to extend his knowledge of frame building technique it is thought that it will be possible to make the fee available in Canadian dollars to meet the expenses of a study tour in Canada.

COMPETITIONS OPEN

MAUSOLEUM, KARACHI.—International competition for the construction of the Mausoleum of Qaide-Azam Mohammed Ali Jinnah at Karachi, Pakistan. Promoters are the Central Committee of the Qaide-Azam Memorial Fund. Architects, engineers and town planners irrespective of nationality may take part. Details from the Secretariat-General of the International Union of Architects, 15, Quai Malaquais, Paris. Assessors are: H. S. Suhradward, Eugène Beaudouin, Robert Matthew, Pier Luigi Nervi, Gio Ponti, and Georges Candilis. Closing date October 31, 1957. Deposit 3,000 francs. *June* 28, 1957.

CIVIC CENTRE, ENFIELD.—Architects resident in the UK invited to submit designs for the Civic Centre buildings and layout proposed to be erected on a site to the east of Silver-street, Enfield. The buildings will include municipal offices, a council chamber, etc., and public assembly halls. Assessor: Mr. S. Rowland Pierce, FRIBA, DistTP. Details from Town Clerk, The Borough of Enfield Public Offices, Enfield, Middlesex. Closing date November 18. Deposit 2 gns. *May* 10, 1957.

NEW HOUSING DEVELOPMENT AT LEITH FORT.—The Corporation of the City of Edinburgh invite architects practising or resident in Scotland, included in the Register of Architects, to submit designs for the development of land at and adjoining Leith Fort, Edinburgh, for residential purposes. Professor J. L. Martin, MA, PhD (Manchester), FRIBA, is assessor associated with Mr. A. Steele, DA(Edin), ARIBA, FRIAS, who will act in a consultative capacity. Premiums: for the design placed first, 750 gns.; second, 500 gns.; third, 350 gns. Designs must be received by November 30, 1957, addressed to the Town Clerk, City Chambers, Edinburgh 1. Deposit 2 gns. *June* 21, 1957.

INTERNATIONAL TOWN PLANNING COMPETITION, BERLIN.—Open to all architects or town planners living in Europe and such outside Europe as were born in Germany. Premiums: One first—*30,000 DM. Two second—20,000 DM—40,000 DM. Three third—10,000 DM—30,000 DM. Four works to be acquired each at 5,000 DM—20,000 DM. Assessors are: Alvar Aalto, Helsinki; Otto Bartning, Darmstadt; C. van Eesteren, Amsterdam; Walter Gropius, Cambridge, Mass., USA; Werner Hebebrand, Hamburg; Rudolf Hillebrecht, Hanover; Johannes Rossig, Bonn; Max Steinbiss, Bonn; Hans Stephan, Berlin; Pierre Vago, Paris; Edgar Wedepohl, Berlin. Information from Senator für Bau- und Wohnungswesen, Berlin-Wilmersdorf, Württembergische Strasse 6-10. Final date for submission: November 30, 1957. Deposit 100 DM. *April* 12, 1957.

*Approximately 11.70 Deutsche Marks to the £.

AUSCHWITZ MEMORIAL, POLAND.—Competition for erection of a memorial on the site of the Auschwitz-Birkenan concentration camp. Sponsored by the International Auschwitz Committee. Open to all artists and architects. It is anonymous and in two stages. Closing date for first stage, March 15, 1958. The winner will be charged with the execution of the project or receive a premium of 500,000 French francs. Details from the Secretariat of the International Auschwitz Committee, Weigandhof 5, Vienna, Austria. Closing date for applications: September 1. Deposit £1. *July* 5, 1957.

***The date in italics refers to the issue of 'The Builder' in which fuller details were published.*

Combustion Engineering Conference

A Conference will be held by the Combustion Engineering Association on November 5 and 6 next, at the Old Swan Hotel, Harrogate, Yorks. Its purpose is to examine the third annual report of the National Industrial Fuel Efficiency Service and to analyse the findings of the Service's engineers in their work with industry; to highlight the inefficiency which has been found in the use of fuel; and to show where the greatest savings can be made and how they can be most easily accomplished.

GUILDFORD'S BUILDING PROBLEM

Difficulty of Obtaining Agreement Among Architects

PROBLEMS of planning for contemporary building in Guildford and of obtaining agreement among architects on what was best to be done were referred to following a recent talk by Mr. John Brownrigg, ARIBA, a local architect, to Guildford Rotary Club.

Replying to a question, MR. BROWNRIGG recalled that the architectural panel system was used in Guildford, but added that he felt very strongly that they did not have the right planning consultations with the authority to do things in an imaginative way.

MR. R. MCL. HARDY said that all the shop fronts of High-street were the outcome of consultations with architects and they could see the results today.

THE MAYOR (Ald. H. H. Kimber) pointed out that experience showed that leading architects were diametrically opposed to one another.

MR. BROWNRIGG added that he believed that modern architecture grew out of the past. They had a lot to learn from the Georgians, but they did not want to copy them. He thought diversity was the right treatment for the Upper High-street of the town. It was going to be difficult to replace a large number of buildings, and at the same time it would be dangerous if there was one main plan.

In the course of his talk MR. BROWNRIGG said that town planners seemed to ignore population statistics in their desire to maintain things as they were. There were many industries which could be carried on in villages to prevent people flocking to the towns. Planning was mainly restrictive and was 'hopelessly inadequate' to deal with these problems.

Mr. Brownrigg urged the avoidance of modernisation without character; they must avoid great stores that would make Guildford look like Staines. There was a danger that they would become moribund if they only looked backwards. They should strive for a human and progressive town with balanced development to cover all the requirements of social life; and a beautiful town, remembering that the judges of that beauty must be not only themselves but many generations to come.

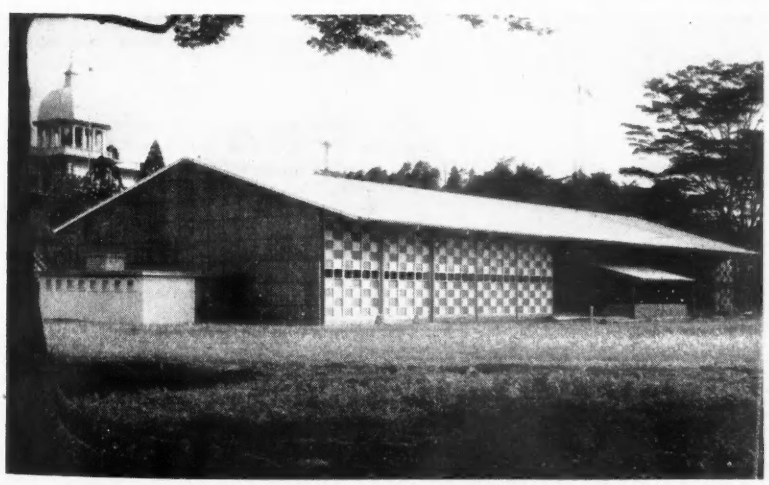
DSIR STAFF

New Education Facilities

THE Department of Scientific and Industrial Research, without waiting for the official sanction of the Treasury, have introduced new facilities for civil servants to increase their professional knowledge and qualifications.

A leading article in the September issue of *State Service*, journal of the Institution of Professional Civil Servants, discloses this move by the DSIR. A Treasury announcement on university sandwich courses, it says, is known to be in preparation and will be issued as an establishment circular, but will be too late to be of much use in this academic year.

'Departments are not supposed to act without the authority of this Circular,' says the article. 'It is pleasing to report that the DSIR has jumped the Treasury gun. DSIR on August 1 informed its staff that assistant experimental officers might take sandwich courses leading to higher qualifications in physics, engineering, chemistry and biology. In exceptional circumstances unestablished civil servants might also take the courses. Previously, only established officers have been allowed to take courses and these were limited to engineering and physics.'



AUDIENCE HALL, KUALA LUMPUR, MALAYA.—The Audience Hall, in which the swearing-in took place at Kuala Lumpur on September 2 of the new Paramount Ruler of Malaya, was a 200-ft. long 'Arcon' structure supplied by Taylor Woodrow (Building Exports), Ltd., marketing members of the Arcon Group. Covering nearly 16,500 sq. ft., it was similar to the normal range of Arcon buildings except that it was partially open-sided and accommodated the raised dais and throne, etc., for the ceremony. It will be re-erected elsewhere in Malaya as a central medical store

BOOK

∴ Books reviewed in these columns may be obtained on application to the Book Dept., 'The Builder,' 4, Catherine-street, Aldwych, WC2. Cash (which should include 1s. to cover postage and packing) should accompany the order.

HEATING AND AIR-CONDITIONING OF BUILDINGS. By Oscar Faber and J. R. Kell. 611 pp. (London: The Architectural Press.) Price 65s.

ADVANCED ideas are one thing, their implementation is another. But without progressive practice, progressive thought becomes meaningless. So it is exhilarating, for example, to be told that by 1965 the UK nuclear power programme will be sufficiently developed to put out annually 6,000MW into the national electricity grid. Simultaneously, it is as stimulating to read a text book which—excluding the data itself—carries such opinion influencing statements on its pages as, and I quote: 'In the interests of national fuel conservation, the construction of new buildings without insulation should be prohibited.'

The words are more cogent because they come from authors (Mr. Kell has carried on the work of the late Dr. Faber) who, as specialist engineers with considerable practical experience, are in the enviable position of knowing their subject inside out. Perspicuously, though, the book avoids obsolete theory and practice or incomprehensible jargon.

In a direct, simple style are reviewed current practice for heating, ventilating and air-conditioning buildings. The book sets out to inform the technologist, potential or trained, at the same time embracing the reader unfamiliar with the elementary physical phenomena essential to the complete understanding of the subject.

The layout of the book is excellent. Weighty, but vital statistics are generally arranged as tables to be read in conjunction with the text only as desired. The drawings which are thickly sown throughout the book are juxtaposed with their relevant text matter—exactly where required. New practices discussed in this edition (the third) include high temperature radiant panels, strip heating, heated acoustic ceilings, high velocity air distribution, primary air and double duct systems. The authors discuss thermal-electric power stations. The Bank of England has an extensive one in the basement where power generation is combined with waste-heat utilisation. Considering that 75 per cent. produced energy is lost when converting coal to electricity in conventional power stations, economically the principle demands the closest attention.

Indispensable to the technologist, the layman would profit by even a cursory reading of this book. After all, if not perplexed already, he will probably have to face the problems of heating or cooling a house at some time in his life. PETER RAWSTORNE.

BOOKS RECEIVED

PRINCIPLES OF BUILDERS' ESTIMATING AND FINAL ACCOUNTS. By R. G. Bailey. (London: Crosby Lockwood & Son, Ltd.) Price 12s. 6d.

ARCHITECTS' WORKING DETAILS. Vol. IV. Edited by D. A. C. A. Boyne and Lance Wright. (London: The Architectural Press.) Price 25s.

CENSUS OF PRODUCTION, 1958

Preliminary Information

THE Census of Production for 1958 will be the first detailed census since 1954, states the Board of Trade. Changes which are being made should, however, enable the census forms to be completed more easily and returned more quickly. Less information will be asked for than for 1954, and full particulars will be required only from firms employing 25 or more persons, instead of from those employing more than 10 persons on productive work.

For 1958, full returns will be made for only about 50,000 industrial establishments, compared with about 71,000 in the 1954 Census. Of the smaller firms, only 17,000 instead of 107,000 will be asked questions about their sales; and 86,000 will be relieved of any obligation to complete census returns.

Altogether a substantial measure of relief will be given to 124,000 of the 233,000 establishments covered by the 1954 Census. This is in fact true also of the larger firms who will still be asked for full returns, since for 1958 they will only be asked general and not detailed questions about their purchases of materials and fuel.

The changes which are being made follow recommendations made by the Committee on the Censuses of Production and Distribution under the chairmanship of Sir Reginald Verdon Smith, whose report was published in 1954 (Cmd. 9276).

The detailed arrangements have been settled in consultation with the Advisory Committee on the 1958 Census, and will include the following:—

(a) Advance notification of the questions to be asked is being given to the firms concerned by the issue, between now and the end of this year, of specimen copies of the census forms and notes. (Forms for completion will be issued in January, 1959.)

(b) The information asked for will correspond more closely than previously to what is covered by firms' ordinary records, since they will no longer be asked to exclude particulars relating to merchanted goods or to the operation of ancillary services, such as canteens.

(c) Combined returns containing particulars for two or more separate establishments will be accepted provided that the establishments are all in the same census industry, and all in the same country (i.e., England, Scotland or Wales).

(d) There will be a number of changes in the way industrial establishments are classified (e.g., as a result of the increased degree of integration in the iron and steel industry); and these changes also will reduce the number of instances in which separate returns have to be made for different branches of one firm.

(e) Small firms in certain industries will be asked simple questions about sales, etc., but for 1958 these questions will be limited to a sample of small firms.

Purpose of Census

The main purpose of the census will be to provide more nearly complete information than can be obtained monthly or quarterly about items of economic importance, such as production, stocks and capital expenditure. This information will be used as the basis for more up-to-date statistical series, and also for the full economic analysis which is contained in the official estimates of national income and expenditure.

The census forms will include questions on: (1) Working proprietors; (2) employment; (3) wages and salaries; (4) materials and fuel purchased; (5) work given out; (6) transport payments; (7) stocks; (8) capital expenditure; and (9) sales and work done.

As stated above, there will be no detailed questions about purchases of materials and fuel. Questions about the number of outworkers and their remuneration have also been omitted, and there has been a reduction in the amount of information required in respect of the individual establishments which are grouped together in a combined return. There is one additional question, namely, that in the wages and salaries section firms will be asked to divide the salaries paid to administrative, technical and clerical employees in October, 1958, between those paid to men and to women.

A Board of Trade spokesman told *The Builder* that more details of how the census would affect the building industry would be available within a few weeks.

RESTRICTIVE PRACTICES COURT

New References

THE Registrar of Restrictive Trading Agreements is required by the Restrictive Trade Practices Act to take proceedings before the Restrictive Practices Court on all registered agreements; but the Board of Trade may direct him as to the order in which cases are to be taken. The Board of Trade directed the Registrar, in April last, to take as among the first cases an agreement involving registrable restrictions in relation to fixing of prices for steelwork for buildings and of maximum and minimum prices for its erection.

The Board of Trade have now directed that the following registered restrictive trading agreements be referred to the Restrictive Practices Court relating to the supply of:—

Bolts and nuts.—Fixing of prices and discounts.

Cement.—Fixing of prices according to locality and standard rebates for users and merchants.

Copper wire rods, hot rolled.—Recommendations for prices and discounts.

Electric domestic cookers.—Fixing of discounts for certain classes of customers and prices for specified extras.

Engineers' small tools.—Fixing of prices and discounts for different classes of customers.

Hand tools.—Fixing of prices and discounts for various kinds of hand tools for different classes of customers.

Plate glass and bending plate glass.—Fixing or recommending minimum prices and maximum discounts for plate glass and processes, including bending, applied to plate glass.

Portable pneumatic power tools.—Fixing of minimum prices and maximum discounts.

Pumps and pumping plant.—Fixing of minimum prices and preferential discounts; standard conditions of sale and contract.

Road rollers.—Fixing of minimum prices for road rollers and accessories.

Sanitary goods (other than pipes) made of fireclay earthenware or vitreous china.—Fixing of prices and discounts, including discounts for approved merchants and quantity discounts.

TECHNICAL COURSES

Regional Council Bulletin

THE Regional Council for Further Education for the South West have issued their bulletin of special courses in Higher Technology for the 1957-58 session. This provides details of courses available:

City of Bath Technical College.—A sandwich course in Management Studies is available for junior executives. Students on this 'works-based' course spend two terms in the College and the middle term in industry.

Bristol College of Technology.—The Department of Building offers a course beginning on January 6, 1958, on High Grade and Pre-stressed Concrete for adult students interested in the qualities of higher grade concretes. The seven meetings which constitute this course will embrace such subjects as—controls of mixing, strength factors, pre-tensioning and post-tensioning.

North Devon Technical College.—A course on Timber Technology begins on October 10 and includes lectures on sound insulation and acoustics, fibre building boards, uses, the use of adhesives in timber engineering, modern woodworking, etc.

South Devon Technical College.—A two week-end course on The Theory and Design of Pre-stressed Concrete is offered by the Technical Department of the College to members of the Institutions of Civil and Structural Engineers and others similarly qualified.

Plymouth and Devonport Technical College.—Designed for civil and structural engineers, architects, builders, etc., a course on Shell Concrete Construction commences in January or February.

Other courses offered are:

Liverpool College of Building

The College is one listed in the recent Government White Paper (Cmd. 9703) on Technical Education as suitable for development as a College of Advanced Technology and it serves as a regional centre on Merseyside for advanced building and associated professional courses.

Senior and Advanced full-time courses in building are offered. These are pre-occupational courses of study designed to prepare young persons for entry into staff positions in the building industry or associated professions. There is also a full-time course in Building, Quantity and Valuation Surveying which extends over a three-year period and prepares the student for the First and Intermediate examinations of the RICS.

Other courses include a full-time sandwich course in civil engineering, part-time courses in building, structural engineering, civil engineering, heating and ventilating, architecture, quantity surveying, etc.

Royal Technical College, Salford

A series of 10 lectures on Bridge Construction is available from January 17. Two other courses also commence in January—the first, a series of eight lectures on Soil Stabilisation—the second, nine lectures on Hydro-Electric Schemes.

Manchester College of Science and Technology

Courses available are—Mechanical Plant Used in the Building and Civil Engineering Industries—four lectures; Modern Civil Engineering Techniques—eight lectures.

NEWS IN BRIEF

Employment in Building

DURING July there was a decrease of 6,000 in the number employed in building and contracting in Great Britain, the figure at the end of the month being 1,503,000, according to the Ministry of Labour and National Service. At the end of July, 1956, the number employed in building and contracting was 1,544,000.

Building Estimators' Exams

The following were successful in the final examinations of the Institute of Building Estimators, held in May last: D. W. Eeles (Herts), B. Dalton (Sussex), J. A. Frampton (Glamorgan), C. H. Wakefield (Middlesex).

BTC Chief Contracts Officer

British Transport Commission announce that they have approved the appointment of Mr. S. C. Robbins, at present an Under-Secretary with the Ministry of Supply, as Chief Contracts Officer at Commission Headquarters.

Four-Storey Limit for Dudley

At a meeting of Dudley Town Council on September 2 it was decided to abandon a scheme to build an eight-storey block of flats at Kates Hill. The council also decided not to consider any future schemes which involved the building of blocks of flats more than four storeys high.

Grants for Building Education

The Nottingham and District Association of Building Trades Employers are to make the following grants and awards for educational purposes: (1) Fitting-out awards totalling £140, between four students, who have been accepted for the Higher National Diploma Sandwich Course at Nottingham and District Technical College. (2) £25 to the Nottingham and District Technical College Prize Fund; £10 to the Nottingham College of Art and Crafts Prize Fund; £20 to the People's College Secondary (Technical) School Prize Fund; £10 to the People's College of Further Education Prize Fund.

Safety Campaign Opens

A 12-week campaign against accidents on building sites was launched on September 9 by the Southern Counties Federation of Building Trades Employers. Between now and Christmas half a million leaflets on safety first will be in building workers' pay packets and 7,000 posters will be displayed on sites and in technical schools, exhibition halls and factories. Saturday morning safety training courses for foremen are being arranged throughout the area and 20,000 copies of a booklet published by the Federation, 'Building Safety Aids,' have been sold.

Thermoplastic Materials

With reference to a statement on thermoplastic materials contained in a paper by J. J. Atkinson and E. I. Roberts on 'New Building Materials and Maintenance Costs,' published in *The Builder* of July 26, Semtex Limited write: It is stated that they have the defect of becoming indented by the heavier pieces of household furniture, and soften at temperatures of between 70 deg. and 75 deg. So far as concerns the first point, we think it is only fair that the observation should be qualified by the remark that this defect is common to all types of resilient and semi-resilient coverings and timber floors and that furthermore, the effects of point loading can be obviated if the furniture legs are supported by loadbearing protectors or rubber cups. Regarding the second point, we confidently expect our thermoplastic tiling to withstand a maximum surface temperature of 80 deg.

New Library Planned

Bradford Libraries, Art Gallery and Museums Committee has recommended the building of a new central library on a site set apart for this purpose in the city's development plan. This is at the junction of Manchester-road and the new civic ring road. Mr. W. Clifford Brown, the City Architect, had previously been instructed by the Committee to prepare plans and estimates for a new library on a cleared site formerly occupied by the Horton Lane Congregational Church. He will now prepare plans for the site in the civic precinct as set out in the plan.

Scientific Films Congress

The Eleventh Congress of the International Scientific Film Association, to be held in Amsterdam from September 21-27, will be attended by a party of some 20 British delegates. The participating countries are invited to submit films for showing at the various sessions during the congress. Eleven British films have been submitted, including 'Work Study and its application to team work' (British Productivity Council) and 'Atomic Achievement' (COI).

Building Supervisors' Salaries

The Ministry of Health announces, in a circular (PTB Circular 74) to Regional Hospital Boards and Hospital Management Committees, that agreement has been reached to an increase in the salary scales of building supervisors employed at hospitals. The new scale, under which salaries range from £655 to £1,040 a year according to the size of the hospital unit, is contained in the circular.

Bridlington Land Shortage

Because of a shortage of building sites the building trade and its kindred trades at Bridlington may have to come to a standstill within the next 12 months. A deputation from the Corporation Housing and Town Planning Committee met a special subcommittee of the East Riding County Council on September 2 to discuss the inclusion of more land for private residential development in the town's development plan.

Cecil Houses: Debt Reduced

The 29th annual report of Cecil Houses (Inc.), now issued from 193, Gower-street, Euston-road, NW1, contains the welcome news that, owing to 'large and unexpected legacies,' the building debt on the Old Ladies' Club had fallen by June last to £18,000 compared with £40,000 a year earlier. Steps are still, however, being taken to wipe out the remainder of the debt, and a Grand Bazaar, for which gifts are now invited, to be held at Kensington Town Hall on October 22 next, is among future activities organised with this end in view.

THE MECHANICAL BARKING OF TIMBER

An ECE Report

THE Joint FAO/ECE Working Party on Logging Techniques and Training of Forest Workers, meeting in June, 1954, discussed barking problems and recommended that the author should assemble, in co-operation with the Secretariat, available information concerning mechanical barking in forest operations. The present report*, containing the results of this investigation, is intended to give a picture of barking problems and their solution in Europe, Canada and the USA.

The report consists of three parts. Part I gives a short description of the composition and physiological and chemical properties of bark, and discusses the barking problem from the technical and economic viewpoints in relation to the method of processing and possible end uses of the timber. In Part II the principle, design and performance of the different types of barking machines now being produced are discussed. The importance of rational planning of the work site is illustrated. Part III consists of an illustrated catalogue, arranged in alphabetical order, giving a detailed description of the mechanism and operation of the various machines.

With regard to the capacity figures for the different machines, the author wishes to point out that the information given derives from various sources, from more or less independent scientific testing, from individual operators, from Government replies to the questionnaire, from manufacturers' pamphlets, etc., and therefore its validity could not be checked. However, from a practical viewpoint it was considered useful to include these capacity figures, which should be regarded as a general guide to the performance of the machine. Prospective purchasers of barking equipment are therefore advised to make a careful analysis of their requirements in regard to type and size of timber and of the particular operation within the framework of the whole logging or manufacturing process, in order to select a suitable machine and make an estimate of its production under these conditions. It is further pointed out that most of these machines are subject to modifications and improvements, so that the prospective purchaser of a particular model should contact the manufacturer in order to find out about recent adaptations and improved performance.

PERSONAL COLUMN

MR. TED PASH, exports and sales director of The Airscrew Company & Jicwood, Ltd., leaves on September 14 for a 12-week tour of America and Canada. In addition to pressing the merits of his company's fan engineering equipment, he will visit woodchip board factories to discuss technical development.

MR. E. HOWARD SMITH, of E. H. Smith (Westhaven), Ltd., chairman of United Merchants, Ltd., for 22 years, has now resigned at his own request. He has also resigned from the board. MR. JOHN DE COURCEY SIZER, previously deputy chairman and secretary, now becomes the chairman of the company; MR. HAROLD R. PAUL, vice-chairman; MR. H. P. T. WATKINS, director and general manager; and MR. E. J. BLUNDELL, secretary.

* The Mechanical Barking of Timber. Copies from Sales Section, European Office of the United Nations, Palais des Malins, Geneva, Switzerland. Price 5s. 6d.

MoW WINTER LECTURES

Programme for October

THE 1957-58 season of discussion lectures arranged by the Ministry of Works on subjects of interest to the building industry commences next month. The programme for October is as follows:—

Sheffield.—Oct. 1: 'Application of Soil Mechanics to Buildings; by A. L. Little, AMICE, AMIStructE, Binnie Deacon & Gourley, at the College of Technology, Salmon Pastures, Warren-st. 7.15 p.m.

Lincoln.—Oct. 1: 'Safety in Building,' by Councillor J. Swanwick, W. J. Simms, Sons & Cooke, Ltd., Contractors, at the Technical College, Cathedral-st. 7.15 p.m.

Liverpool.—Oct 2: 'Mixing and Distribution of Concrete,' by A. G. Stone, AMIMechE, Development Division, John Laing & Son, Ltd., at the College of Technology, Byrom-st. 7.15 p.m.

Mexborough.—Oct. 3: 'Good Practice in Domestic Drainage,' by F. J. Crabb, MICE, at the Schofield Technical College, Park-rd. 7.15 p.m.

Cardiff.—Oct. 8: 'Modern Painting and Decorating,' by J. W. Wilson, Paint and Colour Consultant, at Park Hotel, Cardiff. 7 p.m.

Newcastle.—Oct. 8: 'Defects in Brickwork,' by L. W. Baldwin, Building Research Station, at Connaught Hall, Blackett-st., Newcastle upon Tyne. 7 p.m.

East Ham.—Oct. 8: 'Incentives in the Building Industry,' by Miss A. Entwistle, BSc, Building Research Station, at East Ham Technical College, Department of Building, Arragon-rd, E6. 7 p.m.

Portsmouth.—Oct. 8: 'Introduction to Site Costing for Builders,' by A. E. Chittenden, AMICE, Ministry of Works, at the City of Portsmouth Technical College, Anglesea-rd., Portsmouth. 7.15 p.m.

Bedford.—Oct. 9: Clerical Methods in Builders' Offices,' by J. Provan, Consultant of the Building Advisory Service, at the Shire Hall, Bedford. 7.30 p.m.

Darlington.—Oct. 9: 'Defects in Brickwork,' by L. W. Baldwin, Building Research Station, at the Technical College, Northgate. 7 p.m.

Nottingham.—Oct. 9: 'The Builder and His Contract,' by Norman P. Greig, BA, at the Technical College, Shakespeare-st. 7.15 p.m.

Swansea.—Oct. 9: 'Modern Painting and Decorating,' by J. W. Wilson, Paint & Colour Consultant, at The Macworth Hotel, High-st., Swansea. 7 p.m.

Barnsley.—Oct. 10: 'Safety in the Building Industry,' by J. A. Hayward, Superintending Safety Officer, John Laing & Son, Ltd., at the College of Technology, Church-st. 7.15 p.m.

Llanelly.—Oct. 10: 'Sound Practice in the Use of Wood in Building,' by D. H. Carstairs, of the Timber Development Association, at the Technical College, Alban-rd., Lanelly. 7 p.m.

Bradford.—Oct. 14: 'Practical Formwork Design and Construction for Concrete,' by J. G. Richardson, of Holland & Hannen and Cubbitts, Ltd., and The Concrete Development Co., Ltd., at the Institute of Technology, Great Horton-rd. 7.15 p.m.

Newbury.—Oct. 15: 'Light Weight Concrete,' by W. Kinninburgh, FRIC, Building Research Station, at South Berks College of Further Education, Oxford-rd., Newbury. 7 p.m.

London.—Oct. 15: 'Nuclear Energy and Some Associated Problems,' by W. L. Day, OBE, AMIStructE, Nuclear Project Engineer, Messrs. W. S. Atkins & Partners, Consulting Engineers, at The Building Centre, 26, Store-st., WC1. 6.30 p.m.

Leicester.—Oct. 16: 'The RIBA Form of Contract,' by David Gardam, Barrister-at-Law, at College of Art & Technology, The Newarke. 7.15 p.m.

Guildford.—Oct. 16: 'Incentives in the Building Industry,' by Miss A. Entwistle, BSc, Building Research Station, at the Municipal Offices, Upper High-st., Guildford. 7 p.m.

Ipswich.—Oct. 16: 'Surface Finishes of Concrete,' by F. W. Ward, Cement and Concrete Association, at The Crown & Anchor Hotel, Westgate-st., Ipswich. 7.30 p.m.

Oxford.—Oct. 22: 'Types of Preservatives and Methods of Application,' by Stanley A. Richardson, PhC, Member of the British Wood Preserving Association Council, Executive and Technical Committees, at Therm House, St. Aldate's, Oxford. 7.30 p.m.

Manchester.—Oct. 22: 'Safety in the Building Industry,' by J. A. Hayward, Superintending Safety Officer, John Laing & Son, Ltd., at the Lecture Hall, Gas Board Showrooms, Town Hall Extension. 7.15 p.m.

Doncaster.—Oct. 22: 'The Builder and His Contract,' by Rex Proctor, FRICS, ARIBA, at the Technical College, Gt. George Gate. 7.15 p.m.

Glasgow.—Oct 22: 'Nuclear Energy and, Some Associated Problems,' by W. L. Day, OBE, AMIStructE, Nuclear Energy Engineer, at Room 24, Royal College of Science and Technology, George-st. 7.15 p.m.

Rugby.—Oct 23: 'Plastic Pipes for Building,' by J. F. Berry, Research Engineer, Marley Tile Company, Ltd., at Rugby College of Technology & Arts, Eastlands. 7.15 p.m.

Bognor.—Oct. 24: 'Modern Painting and Decorating,' by J. W. Wilson, Paint & Colour Consultant, at the Technical Institute, Southways. 7 p.m.

Derby.—Oct. 24: 'Legal Obligations of Building Contractors,' by John J. Clarke, FSS, LMTPI, of Gray's Inn, at the College of Art. Green-la. 7.15 p.m.

Rotherham.—Oct. 24: 'Problems of Plastering and Rendering,' by E. L. Westbrook, Research & Development Officer, E. H. Bradley & Sons, Ltd., at the College of Technology, Howard-st., Rotherham. 7.15 p.m.

Watford.—Oct. 24: 'Brick Packaging,' by C J. D. Webster, AMIMechE, Building Research Station, at the Technical College (New Building), Hempstead-rd., Watford. 7 p.m.

Walsall.—Oct. 24: 'Some Aspects of Building Contracts,' by Norman P. Greig, BA, at the Technical College (New Building), Walsall. 7.15 p.m.

Middlesbrough.—Oct. 29: 'An Introduction to Prestressed Concrete,' by R. C. Blyth, MICE, MIStructE, Cement and Concrete Association, at the Cleveland Scientific and Technical Institution, Corporation-rd. 7 p.m.

Willesden. — Oct. 29: 'Dampness in Buildings,' by J. P. Latham, AMIStructE, Building Research Station, at the Willesden Technical College, Denzil-rd., NW10. 7 p.m.

Lincoln.—Oct. 30: 'Essentials of Good Concreting,' by E. E. H. Bate, CBE, MICE, Chief Works Engineer, Ministry of Works, at the Technical College, Cathedral-St. 7.15 p.m.

Scarborough.—Oct. 30: 'Light Weight Concrete,' by W. Kinninburgh, FRIC, Building Research Station, at the Public Library, Vernon-rd. 7 p.m.

Shrewsbury.—Oct. 30: 'Legal Obligations of Building Contractors,' by John J. Clarke, of Gray's Inn, Barrister-at-Law, at Shrewsbury Technical College, Abbey Foregate. 7.15 p.m.

Blackburn.—Oct. 31: 'Seasoning & Preservation of Timber,' by D. B. Irvin, FIWSC, Member of Executive Committee, British Wood Preserving Association, at the Municipal Technical College. 7.15 p.m.

PLASTERBOARD JOINTS

Diminishing Cracking Risks

A JOINT committee comprised of representatives of the National Federation of Plastering Contractors, the Building Research Station and technical representatives from the manufacturers has expressed the unanimous opinion, states the NFBTE, that if and when cracks appear at the joints of plasterboard the cracking and failures are mainly due to structural movements which arise under certain conditions subsequent to the completion of the plastering.

These structural movements mainly involve the deflection, expansion or contraction of timber, sometimes combined with the fact that too great a distance has been left between joists. It is considered that the risk of such cracking could be greatly diminished by the application of two coats of plaster in preference to the one coat generally applied as a measure of economy.

CENTRAL LAND BOARD

Over £60m. Paid in Compensation

THE report of the Central Land Board for the financial year ended March 31, 1957, has been published by HM Stationery Office. By the end of the year, stated the report, the number of applications for payments under Part I of the Town and Country Planning Acts, 1954, reached 115,976 and the payments made by the Board to 76,207 applicants totalled £61,808,169 including gross interest. 31,116 applications were found to be ineffective; 'nil' payments were determined in 4,882 cases and in 214 the payments amounting to £102,276 were wholly set off against payments due to the Board. Thus by March 31, 112,419 applications, almost 97 per cent. of the number lodged, had been finally disposed of.

The analysis of the payments and 214 cases set off, according to type, is:—

Type of application	*Number*	*Amount including interest* £
1. Development charge paid by claim-holder or predecessor in title	17,461	4,857,828
2. Land compulsorily acquired by or sold by agreement to public authorities ...	24,518	36,488,654
3. Private sale of land ...	22,882	17,552,935
4. Gift of land by person who retained claim	517	517,992
5. Purchase of claim	56	24,929
6. Cases analogous to types 2 and3	1,188	898,712
7. Residual cases	9,799	1,569,395

In England and Wales 299 appeals against the Board's determinations were made to the Lands Tribunal during the year making a total of 603 since the 1954 Act began. The number of determinations issued was 20,622. 318 appeals were withdrawn; 48 were heard of which the Tribunal dismissed 42 and allowed 6.

Notices of Dispute

In Scotland 27 notices of dispute were served on the Board in the year, but all were settled without proceeding to a hearing. 949 determinations were issued in Scotland.

In the year 1,747 certificates of the unexpended balance of established development value were issued under Section 48(1) of the 1954 Act and 479 certificates were issued under Section 48(2) to public authorities acquiring land under compulsory purchase powers. Twenty-five certificates were issued under Section 50(1) of the Scottish Act.

Under Section 52 of the 1954 Act [Section 54 of the Scottish Act] the Board has the duty of collecting from public authorities, in respect of the acquisitions of land before January 1, 1955, the amount of Part I payments made by the Board to the persons from whom the land was acquired. During the year the Board obtained reimbursement of £5,828,359 in 4,759 cases (including 285 cases amounting to £345,099 in Scotland). The work of collecting development charges on development begun before November 18, 1952, continued during the financial year. The amount received in cash was £300,294 in 159 cases. From the commencement of the 1947 Act (July 1, 1948) until March 31, 1957, the total amount received in cash or set off against claims was £25,855,608 (including £1,052,740 in Scotland).

CHURCH TIMBERWORK, BOOKS & FABRICS: DAMAGE AND REPAIR

A Special Report prepared for the Central Council for the Care of Churches

The Central Council for the Care of Churches recently set up a Committee to prepare a report on church timberwork and furnishings damaged by fungi and insects, and on the appropriate methods of treatment and repair. This action was taken to meet the growing concern felt by many people that a number of ancient churches are threatened with the loss of timberwork of beauty and value, not only from the damage caused by fungus and insect pests, but by over-drastic repairs made without proper knowledge and advice. The report, which follows the lines of the Council's earlier report on Church Roof Coverings, is published below.

SERIOUS damage to a church will more often than not be prevented by regular maintenance and attention to minor defects as they occur. It may therefore be useful to introduce the main sections of this report with some general rules for guidance in maintaining church buildings. A prerequisite is the provision of easy access to every part of the church roof. All gutters and outlets should be inspected at least twice a year, in the spring and after the leaves have fallen, and cleared of all accumulation of grit and vegetation. In addition, they should always be cleared after a fall of snow, but without the aid of steel shovels or sharply pointed tools that might damage the roofing material. Internal gutters especially, though often difficult of access, must not be overlooked at these times. The aim should be to ensure that water from the roof runs from the building to the outlets without seeping into the roof-timbers or the walls. In the nineteenth century, cast-iron gutters were often bedded on the wall and square-section downpipes set close against it; where inaccessible for painting they may have split, allowing water to percolate through to the wall-plate and walling. Gutters and downpipes should be tested after cleaning and any damaged lengths renewed; all those of cast-iron should be painted at least every five years to preserve them against rust.

As soon as they are discovered, displaced tiles or slates should be replaced and leaks in leadwork repaired in a permanent manner by lead burning, to prevent wet penetrating to the timbers below. A leak causes damage in direct relationship to the volume of water passing over it; thus a pinhole in the sump of a parapet-gutter will cause more serious damage than quite a large hole at the roof-ridge.

Walls should be stripped of ivy and creepers, and wall-bases kept clear of rank vegetation and shrubs; roots or suckers may penetrate the masonry carrying supplies of water with them. Trees, especially poplars, planted too near a building can soon cause much damage to foundations and drains. Fuel and soil-dumps should not be against the church walls; they help to keep them damp.

Pointing, especially the weathered surfaces of offsets, must never be neglected, and all weatherings, buttress-caps, dripstones, projecting mouldings, etc., must be kept in repair.

The ground surrounding the church should be well drained and the surface kept below the damp-proof course. Where no damp-proof course exists the soil is best kept at least 6 in. below the floor-level inside the building. If for any reason the level of the churchyard cannot be allowed, then a narrow dry area excavated immediately round the walls is effective without being obtrusive.

Inside the church all parts of fittings and furniture, including dado panelling, floorboards, sills of screens, etc., in contact with the floors or walls should be examined for signs of deterioration, and carpets and linoleum will need to be lifted to show if they are creating damp conditions beneath, favourable to rot and insects.

The foregoing is concerned with routine maintenance, but the general or particular deterioration of a church building may be such that more extensive repairs are necessary. To specify and to supervise these an architect experienced in the repair of old buildings should be called in. The architect's first duty is to make a thorough examination of the building preparatory to drawing up a report on the state of the fabric: and the scope and nature of the examination necessary is here briefly described. Inspection outside covers the roofs, gutters and downpipes; the condition of the walls; the level of the ground in relation to the floors; and the drainage, both from the roofs and from the surrounding ground. Inside, it begins with the roofs, with special attention to timbers built into or resting on the walls (tie-beams, wall-plates, etc.), and to all timber joints. Where scaffolding is not available, ladders should be provided to afford the architect access to vulnerable points, particularly to wherever there are signs of dampness, either inside or out: damp marks showing on the outside of walls often betray concealed faults in roofs or gutters. Timber lintels too are vulnerable; they are built in, thus they lack ventilation all round, while their inevitable sag causes hair cracks in the masonry or brick jointing that allow wet to penetrate. Ideally, all the ends of built-in timbers should be exposed and all sealed voids opened for these periodical inspections.

The efficacy of the systems of ventilating and heating the building will need to be checked. Ventilation of concealed spaces in floors and roofs is even more important than of the main interior space. A good drying draught is necessary to keep the moisture content of timber below 20 per cent., the minimum content for the growth of dry rot, but air-bricks or ventilators do not serve their purpose unless they provide a through draught from side to side of the building. Continual heating keeps timber dry, but intermittent heating during the winter months often produces a high humidity under the roof and lack of ventilation may create there a pocket of warm humid air. For this reason roofs often provide just those conditions required for the growth of fungi and insects. In short, the discovery of such causes and effects is the purpose of the architect's examination, and the substance of his report.

Whenever damage by fungi and insects is confirmed the architect would be well advised to seek advice from mycologists and entomologists, who are best equipped to produce an accurate initial diagnosis of the attack and to recommend the most efficacious treatment, for both fungi and insects tend to do most of their destructive work in hidden places. But final responsibility rests with the architect to evolve methods of structural repair, to decide whether a structural timber remains strong enough for the stresses it has to withstand, and to relate the certain expense and disturbance of treatment to the possibility of a further outbreak, bearing in mind that it is never possible to guarantee complete eradication in a single operation. In the face of the conflicting factors involved, it is for the architect, with the scientific advice available to him, to decide upon the amount of work to be done.

In this context it is appropriate to point out that commercial firms who, on their own responsibility, recommend and carry out the treatment of timbers affected by fungus and beetles must, obviously, in order to safeguard their reputation for thoroughness and a 'complete cure,' tend to treat every timber; the consequent

cost may thus be unnecessarily heavy. When working under an architect these firms can confine themselves to the areas he stipulates.

The importance of keeping records of repairs has often been stressed; where a church has them they can be most useful in the preparation of a new survey. Where they are not available locally they may exist elsewhere: the Central Council for the Care of Churches maintains Reports and Specifications of work done on various churches since 1917, and the Society for the Protection of Ancient Buildings has records dating back to 1878.

SECTION 1. Damage by Fungi and its Treatment

It is unfortunate that the damage caused by dry rot, wet rot and other wood-destroying fungi is seldom discovered until the timber is in an advanced state of decay. This is especially so in large buildings where examination of timbers is impossible without scaffolding or long extension ladders. Many of these attacks take place in timbers, beams, plates, ends of rafters, joists, etc., which are built into the walls, and can only be discovered by opening up areas where there are signs of dampness.

No wood-destroying fungus is capable of attacking normal dry timber, and in any building that is properly designed, constructed and maintained, the moisture content is not sufficient to provide the right conditions for the spores to germinate. Therefore something must be wrong with any building where the timber can absorb sufficient moisture to enable the fungus to grow and ultimately destroy the wood.

It is very important that a correct identification of the various fungi should be made, since the true dry rot requires a more drastic treatment than the so-called wet rot. (There are differences of opinion over these terms; those used here are those generally used in the building trade.)

Dry Rot

Merulius lacrymans, sometimes named *Merulius domesticus*, is a wood-destroying fungus that is not recorded growing in the forest: it is always associated with converted timber. The name, dry rot, is misleading, as a certain amount of moisture is necessary for the spores of the fungus to germinate and grow. It is a name descriptive of the condition of the timber when the damage is completed; the timber shows cuboidal fracture, is dry, very brittle, and crumbles when touched.

The fungus reproduces itself by spores, which are given off from the fruiting body: a fruiting body measuring about one square yard in surface can give off fifty million spores a minute for many days. The spores are about one three-thousandth of an inch in length, and can only be seen with the unaided eye in their thousands, when they look like a mixture of cayenne pepper and cocoa. They are airborne, can remain suspended in the air for long periods, and travel far. When they come to rest on timber with a moisture content of over 20 per cent., providing other conditions are suitable, they germinate and send their small threads or rootlets, known as hyphae, into the wood. The hyphae will travel through the cell walls and break down the cellulose, building up their strength, and then emerge in the form of strands that combine together to form sheets of fungal tissue like chamois leather; this is known as mycelium.

As the fungus develops, fresh formations take place in the mycelial growth in the form of water-carrying strands or tubes, known as rhizomorphs, often many feet long. The mycelium and water-carrying strands are capable of travelling over timber, steel and concrete, through lime mortar, and even through porous bricks, stone and concrete, and of growing behind panelling and plaster. Young surface growth is almost white in colour, turning grey with age, but the range of colour can vary from white through grey to violet and even orange. Maturity is reached in fruiting bodies, usually in the form of flat pancakes or brackets, which vary in colour from orange to red in the middle, surrounded by dirty grey.

From the original source of infection this fungus grows in search of more timber to attack, and can find its way to perfectly sound timber with a low moisture content, so spreading from one part of the building to another. Decomposition of the wood often serves to supply sufficient moisture for the fungus to continue the decay of wood in buildings without any further external source of water supply. It is therefore not enough to make a building waterproof, for dry rot, once established, is capable of manufacturing its own moisture out of the timber. It takes the moisture out of the cellulose and transfers it through the water-carrying strands to the dry wood, weeping tears on the dry wood until that too contains over 20 per cent. moisture; so the attack can extend to every piece of timber in the building. Because of this danger it is essential to trace the growth of dry rot to its extremities.

Wet Rot

Coniophora cerebella, commonly known as the cellar fungus, is not nearly as dangerous as the true dry rot since it requires a moisture content of over 25 per cent., and cannot live if this moisture content is reduced.

The wet rot fungus, which is a fungus and not just wood rotten from wetness, has no water-carrying strands, and therefore does not carry its own water supply from one piece of wood to another like the true dry rot fungus. It has fine branching strands which rapidly become dark brown or blackish. The fruiting body is an irregular olive green, skin-like, mycelial sheet with small lumps on the surface.

Pore fungus (*Poria vaillantii*) and other species cause a similar type of decay, but are not so virulent in their attack as dry rot. They require more moisture in the wood for their growth than dry rot and, since their conducting strands are much smaller, can be more readily eradicated.

Whilst there are several other kinds of wood-destroying fungi to be found in buildings, they are not of sufficient importance to be enumerated here.

Eradication of Dry Rot

Inspection of the whole building will reveal the place of origin and cause of the attack. The cause must be removed, and a treatment applied according to the following rules for guidance:

1. Do not disturb any fruiting bodies until they have been treated with a fungicide, as the spores are airborne.

2. After sterilisation of the fruiting bodies, open up and trace the spread of the fungus, and spray all attacked timber and surrounding walls before removal of any part of the fabric.

3. All attacked wood should then be carefully examined and those parts that have been broken down by fungal attack cut out carefully and taken away for burning immediately. It is important that full records are made of all timber sizes and, particularly, of moulded or ornamental features on the timber, as an aid to accurate reproduction.

Note. With ornamental timberwork every effort should be made to save as much as possible of the craftsman's original work. This can often be done by carefully paring away the decayed wood behind the moulded or carved work; the latter, after treatment with fungicide, can be planted on new timber, thereby maintaining the dimensions and much of the appearance of the original feature.

Where plain timberwork is concerned, more drastic treatment can be applied by cutting back 2-ft. beyond external signs of fungus decay. Fungal decay may develop behind the exposed surface, and to ensure that the cutting back has been sufficient, *specimens of the timber should be taken and subjected to expert microscopic examination.*

4. Trace the growths of strands behind the plaster by cutting it away until the stonework or brickwork beneath is free from any signs of fungus for at least 3 ft. around the parts attacked. After removal of the plaster from the affected area, examination holes should be cut at intervals into the main fabric to trace the spread of growth within the walls. In certain walls (i.e., those having soft porous cores) the growth of fungus may well continue in any direction behind the surface even though the latter appears free of fungus. Internal examination of the wall structure will also give information that will help towards deciding upon the special treatment to follow.

Note. Where plaster bearing painted or ancient tempera work is concerned, every consideration should be given to the expert removal of the infected parts in suitable slabs for separate and careful treatment prior to refixing.

5. Rake out the mortar joints to a depth of 1 in. and heat the infected parts of the wall with a brazing lamp or flame gun, taking precautions against fire hazards. Ordinary blow-lamps do not provide sufficient heat and take too long to heat up the wall surfaces. Heating for about three minutes per square foot is necessary, but care must be taken with those kinds of stones and bricks that are liable to fly or crumble, to the danger of the workman and the detriment of the fabric. The flame should, therefore, be kept on the move.

6. After the foregoing treatment, clean with a stiff bristle brush all wall surfaces from which plaster has been removed.

7. Reheat the whole wall and spray again whilst it is really hot, again taking care with

stones and bricks that tend to fly. This gives a further penetration into the wall, but it is a method that cannot be used with all types of commercial fungicides and the advice of the manufacturers should first be taken before applying their fungicides to hot surfaces. Raked joints should then be re-pointed.

8. New timbers should be cut to size and treated with a preservative either by pressure or by steeping. Where these methods are impracticable on the site at least two applications of the preservative should be made with a brush.

Special Treatment of Walls.—Where it is necessary to infiltrate fungicide into the walls, this can best be done by methods similar to those used in grouting, by opening inward downward-sloping holes into which the liquid can be poured from cups or through funnels right into the core of the wall. Another method is to remove bricks, or stones, etc., at regular intervals and to a depth sufficient to reach the middle third of the wall, then, by fixing a barrier of slate or clay in front of the hole, to form a reservoir for the liquid while it soaks into the wall. The spacing of these holes, which are formed by either drilling or extraction, must depend upon the porosity of the materials, the type of mortar, etc., but a useful average may be taken as 2 to 3 ft. in all directions and staggered to give complete coverage.

Eradication of Wet Rot

'Wet rot' will die in timber when the moisture content is reduced below 25 per cent. Should, however, the fungal decay be far advanced, then all load-bearing timbers will have to be removed. Otherwise the treatment for wet rot is not as drastic as that required for dry rot, for wet rot will never attack dry timber. It can readily be eradicated by the removal of such timbers as are badly attacked and the complete drying out of the areas where it has developed, without any heat treatment; such areas must, however, be sprayed because, in the lowering of the moisture content of the walls, conditions can become ideal for dry rot where the wet rot occurred.

Treatment of Timber near the Fungal attack.—If it seems advisable to apply preventative treatment to the ends of beams and other structural timbers, this can be done by boring suitable sized holes ($\frac{1}{2}$ in. to $\frac{3}{4}$ in. in diam.) in the timbers at approximately 1 ft. intervals, staggered in broad timbers, and funnelling the fungicide into the wood; but this should only be done under technical advice. As an alternative, special pressure guns can be used. All timber to be treated should be free from dirt and surface moisture; this is particularly important where surface treatment is proposed.

It should be remembered that attacks of the death watch beetle are often found in conjunction with some form of wood-destroying fungi. Their joint destruction is usually greatest where the timbers are in contact with walls, a fact that the architect realised when devising the building of King Solomon's Temple, 'For without in the wall of the house he made narrow rests round about, that the beams should not be fastened in the walls of the house.' (I Kings, vi. 5, 6.)

SECTION 2. Damage by Insects and its Treatment, with a Supplement on the Treatment of Painted Woodwork

There are many insects that may attack wood at various stages in its handling and after use, but it is sufficient here to consider only the following, which, to a varying degree, are concerned with damage to church woodwork :—

(a) The Death-watch beetle (*Xestobium rufovillosum*),

(b) The Common Furniture beetle (*Anobium punctatum*),

(c) Powder-post beetles (*Lyctus species*),

(d) The House Longhorn beetle (*Hylotrupes bajulus*).

The damage is caused by the boring and feeding of the grubs, which upon completing their development emerge from the timber as beetles, leaving exit holes in the surface of the wood; the holes are often the first superficial evidence of attack. The beetles then crawl or fly to seek suitable places in which to lay their eggs and thus spread infestation. For diagnostic purposes the brief information given below should be supplemented by reference to leaflets and other publications issued by the Forest Products Research Laboratory and the British Museum (Natural History) (see p. 8).

(*a*) *Death-watch beetle.* — The beetle measures from $\frac{1}{4}$ to $\frac{1}{3}$ in. in length. It is dark chocolate brown, but is coated with patches of short yellowish hairs, which, in old specimens, may become rubbed off, the insect then partly losing its mottled appearance.

The larva is a curved, white grub, covered with long, fine yellowish hairs; its head is yellowish-brown, and is furnished with a pair of dark brown jaws. When fully grown, the larva is slightly larger than the beetle.

While this insect frequently occurs, along with the closely related common furniture beetle, in old timber and woodwork (especially oak and other hardwoods[1] though softwoods are not immune from attack), it is of much greater structural importance. Although sapwood[2] is preferred, heartwood[3] is also attacked, particularly when decayed following contact with the ground, damp masonry or brickwork. Timber members severely affected include wall-plates, wall-posts, bond timbers, bearing ends of tie-beams and feet of rafters. Where fungal decay has penetrated into a heartshake, beetle activity may have hollowed out most of the beam, and seriously affected its strength, though no exit holes appear on the surface, except at joints and ends. Timber sounding hollow or 'dead' when hammered should be examined internally for such attack, by boreholes at intervals. Flooring, particularly of the suspended type overlying unventilated sub-floor spaces, or with joists in direct contact with the ground, is prone to severe attack. Infestation may spread from flooring to the lower parts of pews and panelling and is also found in screens.

Exit holes are seldom uniform in size, usually varying between $\frac{1}{16}$ in. and $\frac{1}{8}$ in. in diameter. Adults emerge in April, May and June. The bore dust is coarser than that made by the grubs of common furniture beetle, and contains prominent bun-shaped pellets.

The length of the life-cycle of the death-watch beetle varies greatly, exceeding ten years in sound dry heartwood but considerably less, three to four years, when the attacked wood contains old fungal decay and is damp.

(*b*) *Common furniture beetle.* — The beetles are about $\frac{1}{16}$ to $\frac{1}{8}$ in. in length and are reddish to blackish-brown. The first body segment (prothorax) is hood-shaped and, when viewed from above, almost completely hides the head. The upper parts of the body are clothed with a fine covering of short yellow hairs, and rows of small pits or punctures on the wing covers are well defined.

The larvae (so-called 'worms') are curved white grubs covered with fine short yellowish hairs. The head is yellowish-brown and is furnished with a pair of dark brown jaws. When fully grown, the larvae may be about $\frac{1}{4}$ in. in length.

This insect is the most frequent cause of 'woodworm' in structural timbers, joinery and furniture that have been in service for a number of years; both softwoods and hardwoods are affected. Attack is confined mainly to sapwood but may enter heartwood, especially in the presence of fungal decay. Formerly of little structural importance in the massive timbers of old buildings, this insect causes more serious damage in buildings in which softwoods of smaller dimensions and containing a high proportion of sapwood have been used. The flight holes are about $\frac{1}{16}$ in. in diameter or slightly less. Beetles commonly emerge from late May to August. The bore dust characteristically contains small oval or cylindrical pellets. The length of the life-cycle varies according to the condition of the wood, but is at least two years and in dry situations probably much longer. In churches, it is

[1] The term 'hardwood' that occurs throughout this Report refers to the wood of broad-leaved trees, ash, elm, oak, walnut, etc., as opposed to 'softwood' which includes all the cone-bearing trees like fir, pine, larch, spruce, etc. The wood from the trees of both types may be further sub-divided into two zones:

[2] *Sapwood.* The outer zone made up of tissues, which in the growing tree contain living cells that conduct sap and moisture from the soil to the leaves. Sapwood is generally lighter in colour than heartwood, contains sugar and starch and is usually highly susceptible to fungal decay and attack by wood-boring insects.

[3] *Heartwood.* The inner zone and fully ripened central core is made up of tissues, which in the growing tree have ceased to contain living cells. It is generally darker in colour than sapwood, although not always clearly differentiated from it. It does not conduct, but may contain resins and gums and is usually resistant to attack by wood-destroying organisms.

common to find attack widely scattered in oak sapwood and in softwood in all parts of the building, e.g., roofing and flooring timbers, pews, in both casing and working parts of organs, and in panelling, particularly of plywood with a core of birch or alder bonded with organic glues.

(*c*) *Powder-post beetles.* — The beetles are small, somewhat flattened and elongated insects, varying in colour from reddish-brown to black and averaging $\frac{1}{8}$ in. in length.

The larvae are curved, white grubs; the head is yellowish and is furnished with a pair of dark brown jaws. When fully grown, the larva measures approximately $\frac{1}{4}$ in. in length. A useful diagnostic character, which can be seen with the aid of a low-power lens, is a brown spot, representing a large breathing pore, on either side near the end of the body.

These insects attack the sapwood only of a wide range of hardwoods[2], most softwoods are immune from attack. Infestation usually originates in timber yards and manufacturers' premises, and is frequently introduced to buildings in new woodwork. Exit holes are small, usually less than $\frac{1}{16}$ in. in diameter, and the tunnels contain a dust as fine as flour. The damage is seldom important in structural timbers, but may be troublesome in recently installed strip and block flooring, panelling and new furniture where sapwood has been included. Spread of attack in buildings is restricted by surface finishes, if they are effectively continuous, e.g., paint, polish, varnish, etc., which seal the wood vessels in which the eggs are laid. The length of the life cycle out-of-doors or in unheated buildings varies from one to two years, the beetles emerging from March onwards, but in heated buildings may be reduced to nine to ten months, with the beetles emerging from January onwards.

(*d*) *House longhorn beetle.* — The beetle is somewhat flattened, measures from $\frac{3}{8}$ to $\frac{5}{8}$in. in length and is brown or black. The head and first body segment (prothorax) are thickly covered with grey hairs except, upon the prothorax, for a smooth central line, on each side of which is a shiny black prominence. On each wing-cover the grey hairs are grouped in four patches, which are often fused to form two transverse bands.

The larva is a straight-bodied, fleshy, white grub clearly divided by deep transverse folds into a number of rings or segments. The head is sunk in the prothorax so that only the dark brown jaws are visible. When fully grown the larva attains a length of about $1\frac{1}{4}$ in.

This insect is less common in the United Kingdom but during the past 20 years has become an important, localised pest of softwood roofing timbers chiefly in parts of Surrey, where attack is found mainly in houses up to about 50 years old. Old damage, caused by insects now long extinct, has been found in large dimensional softwood roofing timbers in churches and other old buildings in the London district. This may be of little structural importance but should be investigated. The insect attacks fresh, sound softwood, and, like the common furniture beetle, confines its attention mainly to sapwood; but the degree of disintegration is usually greater and frequently results in severe damage in modern buildings where the structural timbers are of small dimensions and contain a high proportion of sapwood.

Exit holes are large and oval, measuring about $\frac{1}{4}$ in. long by $\frac{1}{8}$ in. broad. The beetles emerge between July and September.

Owing to the long life-cycle, reputed to be from 4 to 11 years, and the large size of the fully grown grubs, appreciable damage may be caused before the attack becomes apparent in the form of exit holes; disintegration of the sapwood is usually masked by a surface skin of sound wood. It is possible for individual timbers to be so far weakened internally that they become structurally dangerous while the surface is still almost unbroken.

REMEDIAL & PREVENTATIVE TREATMENTS

Survey of Buildings

Recognition of the principal woodboring insects that occur in buildings and of the type of damage they cause, both actual and potential, forms the basis of the most effective and economic methods of dealing with infestation, and determines the extent of replacement, repair, or insecticidal treatments that may be necessary. With such knowledge, a thorough inspection of the church should be made, outside as well as inside, before any work is done (see also p. 461). Special care should be taken to examine all areas where there is any sign of dampness through leaks from faulty downpipes, gutters, settlements or other causes. Within the church, the difficulty of inspection will vary according to the type of roof concerned, whether open from below or enclosed by ceilings, and the facilities available, e.g., scaffolding or ladders. An initial inspection from a ladder, although limited in scope, can often provide sufficient information for a decision to be made as to whether erection of scaffolding and exposure of timbers are necessary. Where there is no access to roofing timbers from within, for instance where hidden by barrel-shaped plaster ceilings, removal of small areas of plaster from just above the walls at vulnerable places will enable the lower extremities of the trusses in the walls to be examined.

The object of such inspection is twofold: (1) to assess the existing condition of the timber in respect of past attack, and (2) to determine the extent of continuing insect activity. In many cases (1) is the more important, especially where long-standing damage by the death-watch beetle is present and the most urgent requirement is to restore the stability of the woodwork by repairs and renewal.

With those insects that mainly affect sapwood only, such as the common furniture beetle, where attack is not deep-seated, and may be arrived at by probing the timber to reveal the extent of disintegration, assessment of damage is usually fairly straightforward. Moreover, sampling of widely scattered members in a roof is usually sufficient to gain an overall picture of infestation by this insect without detailed examination of every member, since with timber of one kind and of uniform quality the proportion of sapwood and the extent of infestation, actual and potential, are usually also uniform. On the other hand, where the death-watch beetle is concerned, attention should be directed mainly to timbers in contact with, or near, the walls, and particularly beneath the valleys of adjacent steeply pitched roofs, where old decay and dampness are likely to occur and damage be severe. The numbers and distribution of beetle exit holes provide a rough index of the extent of damage but not of the depth to which the timber is affected, and where hidden damage is suspected, for example, around decayed knots and bearing ends of timbers, drilling may supply useful information. Such an examination may involve considerable opening up of the structure, particularly where the timber is built into the wall, and the extent to which this is required should be decided by the architect, acting where necessary in consultation with an entomologist experienced in this work. In suspended flooring, an indication of the condition of the underlying joists is often provided by death-watch beetle exit holes in the overlying boards, but whenever possible boards should be lifted, particularly by exterior walls, to examine bearing ends of main beams and joists. Other woodwork such as panelling, screens, organs, pews and furniture should not be omitted from the inspection.

It has been stated that where there are bats there are no Death Watch beetles. This is quite untrue.

Information on insect activity may be obtained by

(a) prodding or opening up the damage in order to detect living grubs within; in a building this method is seldom practicable nor, in the apparent absence of grubs, entirely reliable;

(b) noting the presence on or near attacked timber of living beetles during their emergence period; death-watch beetles fall from roofing timbers to the floors below, where their numbers and distribution provide a useful guide to the extent of activity in the timbers above;

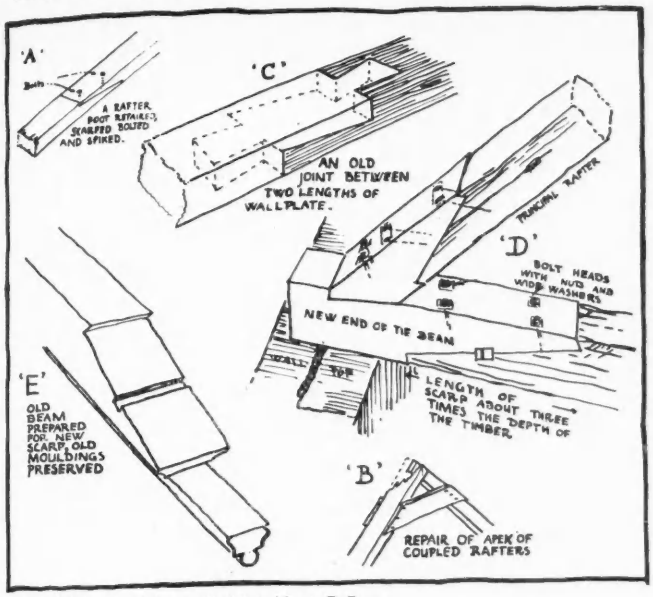
(c) noting the condition of the beetle exit holes, whether clean in outline and the wood within bright, or dull and 'weathered,' that is to say whether new or old;

(d) noting the small piles of bore-dust on the surface of, or falling from, the wood that are caused by the boring of the grubs within and by the beetles making their exit holes.

Methods of Repair

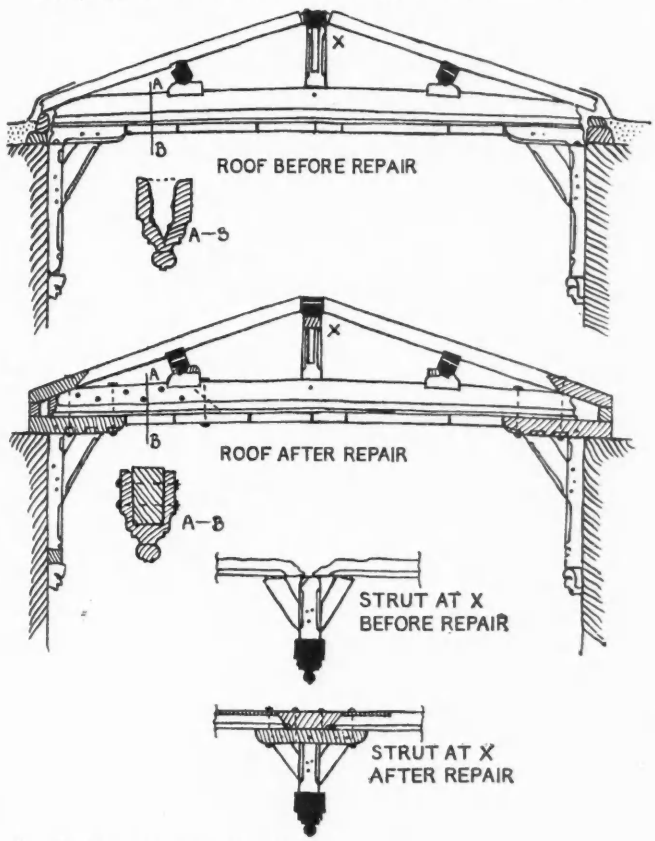
Methods of repair and the treatment of new wood used for replacement are described later (see p. 468) but the following points should be emphasised:—

1. Where oak is used for replacement all sapwood should be excluded; failing complete absence of sapwood, the timber should be thoroughly treated with a suitable preservative applied by immer-


'A'
A RAFTER FOOT REPAIRED, SCARFED BOLTED AND SPIKED.
'C'
AN OLD JOINT BETWEEN TWO LENGTHS OF WALLPLATE.
PRINCIPAL RAFTER
'D'
BOLT HEADS WITH NUTS AND WIDE WASHERS
NEW END OF TIE BEAM
WALL TOP
LENGTH OF SCARF ABOUT THREE TIMES THE DEPTH OF THE TIMBER.
'E'
OLD BEAM PREPARED FOR NEW SCARF, OLD MOULDINGS PRESERVED
'B'
REPAIR OF APEX OF COUPLED RAFTERS

From 'The Repair of Ancient Buildings,' by A. R. Powys.

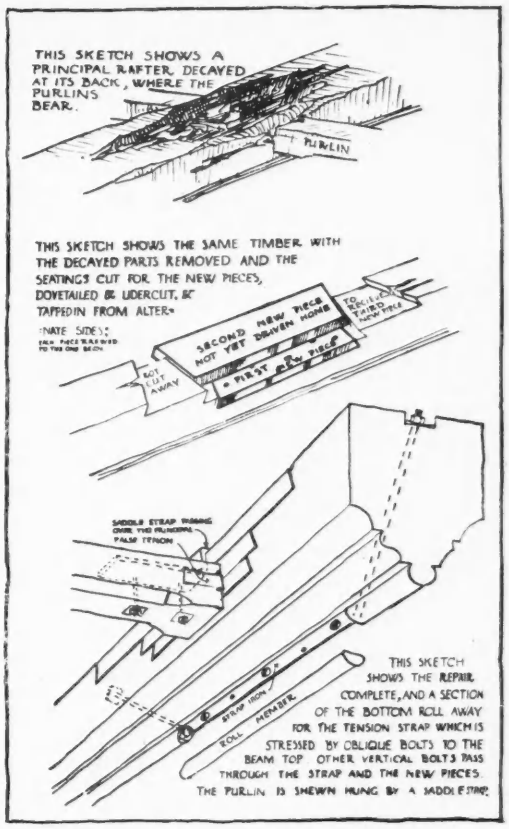
Every effort should be made to keep as much as possible of the timber of an ancient roof. Where only the feet of rafters have decayed, new ends can be scarfed or spliced to the old wood.



From 'The Repair of Ancient Buildings,' by A. R. Powys.

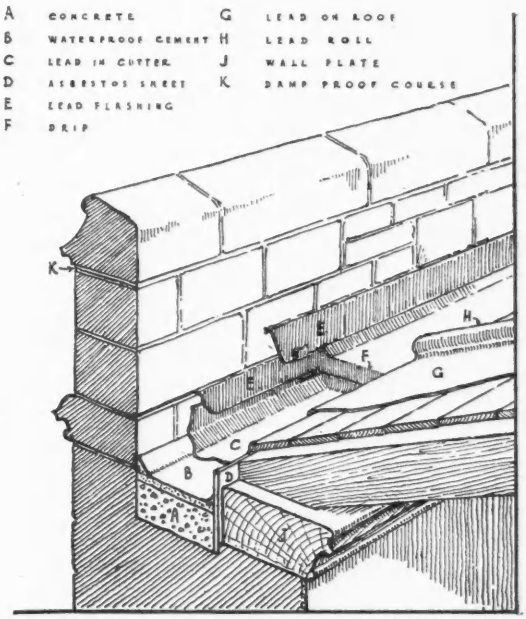
This shows the complete repair of a roof. In some sections by scarfing of ends; in some by cutting out the rotted heart of a moulded timber (as at A-B) and inserting a new core of seasoned oak; in other sections by introduction of metal straps and carriage bolts.

Church Timberwork: Damage and Repair


THIS SKETCH SHOWS A PRINCIPAL RAFTER DECAYED AT ITS BACK, WHERE THE PURLINS BEAR.
PURLIN
THIS SKETCH SHOWS THE SAME TIMBER WITH THE DECAYED PARTS REMOVED AND THE SEATINGS CUT FOR THE NEW PIECES, DOVETAILED & UDERCUT, & TAPPED IN FROM ALTER-NATE SIDES; EACH PIECE BEARING TO TWO ONE BEAM.
SECOND NEW PIECE NOT YET DRIVEN HOME
FIRST NEW PIECE
SADDLE STRAP PASSING OVER THE PRINCIPAL FALSE TENON
STRAP IRON
ROLL MEMBER
THIS SKETCH SHOWS THE REPAIR COMPLETE, AND A SECTION OF THE BOTTOM ROLL AWAY FOR THE TENSION STRAP WHICH IS STRESSED BY OBLIQUE BOLTS TO THE BEAM TOP. OTHER VERTICAL BOLTS PASS THROUGH THE STRAP AND THE NEW PIECES. THE PURLIN IS SHEWN HUNG BY A SADDLE STRAP.

From 'The Repair of Ancient Buildings,' by A. R. Powys.

In order to preserve the carved or moulded underface of a roof principal, the weakened section can be cut out and the decayed end of the purlin, where the mortice is no longer effective, reinforced by strap irons and false tenons.



From 'Old Churches and Modern Craftsmanship,' by A. D. R. Caro

Parapet gutter reconstructed in concrete.

sion or brushing. The treatment of sound oak heartwood is not necessary, penetration being negligible.

2. For new timbers hidden from view, e.g., wall-plates, a permeable softwood impregnated under pressure with preservative could be used instead of untreated oak.

Insecticidal Treatment

Replacement of structurally affected timbers together with the adoption of measures to ensure that roofs and floors are kept dry and well ventilated, should eliminate a high proportion of the insects and in regard to the death-watch beetle retard its development and arrest progress of attack. Since the removal of all structural woodwork showing any trace of damage is seldom practicable, and often neither justifiable nor desirable, active attack may inevitably remain to be dealt with by chemical means. Where more than one roof is involved, the survey of the building will have provided information on which to base the order of priority of treatment.

The use of liquid insecticides is usually the only practicable procedure. There are many chemicals that kill insects provided they can be reached, and adequate power to penetrate timber to ensure this contact is one of the essential properties of an insecticide suitable for use against timber insects.

Before the insecticide is applied, all powdery wood should be cut away and debris and bore-dust removed by vacuum cleaner. Application may be by brush, where practicable, or more commonly by spray; but it should be supplemented by injection or some method of funnelling, with or without gravity feed, through exit holes or holes of about the same size or slightly larger specially drilled for the purpose, where deep-seated damage is present. The holes should be staggered so as not to weaken the timber. Injection is particularly desirable for dealing with infestation by the death-watch beetle because of the impracticability of penetrating oak heartwood by surface application. Small ornamental members may sometimes be removed for immersion in a tank of insecticide.

The names of firms with experience in insecticidal treatment of timber in buildings, and equipment for the work, may be obtained from the Central Council for the Care of Churches. Where local labour is used the work should be carried out under the close supervision of the architect or other responsible person with the required knowledge. Unintelligent application by unskilled labour may well result in waste of money and effort.

Of the proprietary preparations now available, many include chemicals known to be satisfactory as insecticides and preservatives, for instance, metallic naphthenates, chlorinated naphthalenes, polychlorophenols and their derivatives; contact insecticides such as DDT, BHC, and Dieldrin are included in some. These materials, made up in penetrating solvents, are highly toxic to wood-boring insects and give long protection from attack. There may be little to choose between the best preparations so far as toxicity to insects is concerned, and success in their use depends to a great extent upon the care and thoroughness with which they are applied and upon the penetration achieved. *A single treatment, however thorough, cannot be relied upon to destroy all stages of the insects within the wood, and repeated treatments may be necessary.* The number and timing of these depend largely on the insect and type of wood concerned and on the results obtained as judged by subsequent inspections. With the death-watch beetle, and to some extent the house longhorn beetle, the long and variable life-cycle and the possibility of beetles derived from surviving grubs emerging several years after treatment, make it difficult to assess its efficacy quickly and to lay down hard and fast specifications regarding the number of treatments and the period for which they should be continued. In some roof structures, where dismantling is necessary for reaching the timbers, annual treatments for three or four years are clearly impossible and the need for a repetition of the initial treatment must be carefully judged on the results of periodic examination.

It is usually an advantage to apply insecticides round about the time of emergence of beetles, when they are more easily reached and the maximum effect achieved. With the death-watch beetle, the overlapping of generations and the presence of pupæ and sexually immature adults from late summer onwards, prior to emergence the following spring, make the timing of the treatment less critical and it can be carried out with advantage throughout the year.

Fumigation

This method of control can sometimes be used as an alternative to the use of liquid insecticides and is dealt with more fully in the Supplement immediately following this Section. It is, however, seldom possible of application to the structural timbers in churches; its main use is for articles that can be removed to a fumigation chamber.

Insecticidal Smokes

Insecticidal smokes, consisting of a suspension of finely divided particles of contact insecticides, like DDT or BHC, are sometimes used in places difficult to reach by spray, under floor boards, in inaccessible roof spaces, etc., as a means of killing the common furniture beetle at the time of its emergence. They are of no value against the larval stages of the insect within the wood; furthermore, as little residual effect is obtained on the surface of timber, repeated treatments are necessary throughout the insects' period of emergence.

SUPPLEMENT : TREATMENT OF PAINTED WOODWORK

Special care is always needed in the treatment of painted woodwork in churches. The subject divides itself into the two categories, (i) painted woodwork that can be removed for treatment, and (ii) painted woodwork that must receive attention *in situ*. In practice, the latter category will be found to be the more usual, but where removal is feasible, care must be taken to ensure that the risk of mechanical damage during removal is reduced to a minimum. In case of doubt about the potential risk involved advice should be sought from the Central Council for the Care of Churches.

Two general methods of treatment are available, namely fumigation and the use of liquid insecticides. The most commonly used chemicals regarded as safe for the treatment of painted woodwork are described below under these two headings, since, whatever method is adopted, it is desirable that no insecticide of unknown chemical composition should be used.

Fumigation

This is regarded as the safest and surest procedure and should be adopted, whenever possible, in the treatment of valuable painted woodwork or church furniture. The chemicals used are carbon disulphide, hydrogen cyanide (prussic acid) and methyl bromide.

1. *Carbon Disulphide.*—This is a mobile liquid which is very volatile (BP 46° C. or 115° F.). It gives off a heavy vapour which has a very low flash point and forms an explosive mixture with air. It also has a very unpleasant smell and, if inhaled, can act as a powerful poison.

Fumigation with carbon disulphide may only be carried out by trained workmen, who are familiar with the properties of the gas. The object to be treated is placed in an air-tight container, which is filled with the vapour by allowing carbon disulphide in shallow dishes to evaporate at ordinary room temperature. A suitable vapour concentration is attained by using about 1 fluid oz. of carbon disulphide per cubic ft. of air space. Treatment should be continued for at least two weeks to give time for the vapour to penetrate the infested wood. If the object is very bulky, further treatment with a fresh quantity of carbon disulphide is recommended. N.B.—To avoid any risk of explosion it is imperative that all naked lights and any electric apparatus liable to spark should be removed.

2. *Hydrogen Cyanide (Prussic Acid).*—This is an extremely volatile liquid (BP 25° C. or 77° F.). The vapour is a highly dangerous poison and every safeguard must be taken against accidentally inhaling it. Fumigation with hydrogen cyanide gas involves the use of a special plant, which must conform to the Hydrogen Cyanide (Fumigation of Buildings and Ships) Regulations 1951, and can only be carried out by firms especially equipped for the purpose. A list of such firms may be obtained from the Central Council for the Care of Churches.

3. *Methyl Bromide.*—This is a gas at normal temperature and pressure; it is handled in cylinders under pressure. A small amount of chloropicrin is added to give a characteristic smell so that leaks may be detected. It has not been in use

as long as carbon disulphide and hydrogen cyanide, but experience has shown that it is effective in treating infested materials. Upholstered articles, particularly if they contain horsehair or foam rubber, are liable to acquire an unpleasant smell when treated with methyl bromide.

Fumigation by any of the above chemicals has the advantage of being likely to achieve a 100 per cent. 'kill' if properly carried out, but since no residual traces of the fumigant remain in the treated material it follows that there is no continued protection. Hence re-infestation is possible; therefore, inspection is advisable subsequently at regular intervals.

Objects which cannot be dismantled on account of their size or position can sometimes be fumigated *in situ* under suitable sheets of impermeable material, such as special rubber or polythene. Names of firms who are prepared to carry out such fumigation may be obtained from the Central Council for the Care of Churches.

Treatment with Liquid Insecticides

(see also Section 2)

Where fumigation is impracticable, treatment with a liquid insecticide is necessary and a large number of such preparations are available on the market under a variety of proprietary names. The chemical constituents most frequently used in these include the following:—

1. Chlorinated naphthalenes.
2. Metallic naphthenates.
3. Polychlorophenols, (*e.g.*, Pentachlorophenol) and their derivatives.
4. BHC (Benzene hexachloride).
5. DDT (p-p-Dichlor-diphenyl-trichlorethane).

BHC and DDT are probably not very effective in the treatment of worm infestation when used alone, but are often employed as additives in other preparations. Metallic naphthenates are effective insecticides in themselves but should not be used in the treatment of painted works of art because of the risk of damage to the painted surface that their use involves.

Most liquid insecticides are marketed either as aqueous solutions or as solutions in hydrocarbon solvents such as white spirit or other light oil. The use of aqueous preparations on painted woodwork should as a rule be avoided because of the danger that the water may penetrate and soften, or swell, the ground (a special preparation of chalk or gypsum in a glue medium) under the paint.

The choice, therefore, is restricted to an insecticide dissolved in an organic solvent, but care must be taken to ensure that the organic solvent used is completely volatile. If a liquid of high boiling point is present in the solvent, a disfiguring oily stain will be left on the surface of painted work. Before using a proprietary product a small quantity of it should be brushed out on a piece of wood and allowed to evaporate, in order to make sure that no oily stain is left.

The crystals of pentachlorophenol, BHC and DDT, that remain after evaporation of the solvent, are relatively volatile, and the residue deposited in the treated material will slowly evaporate, the rate of evaporation being greater for the compounds BHC and DDT than for pentachlorophenol. Consequently unless a 100 per cent. 'kill' is at once achieved, which in practice is almost impossible with liquid insecticides, the infestation may become active again. It should, therefore, be realised that a second, or even a third, treatment may be necessary to guarantee a complete suppression of the infestation. These volatile substances may tend to be deposited slowly on the surface of the treated object in the form of a white 'bloom.' This can readily be removed by washing the affected area with a swab moistened with white spirit.

If there is special need to confer continued protection against reinfestation upon painted woodwork — for example, the backs of painted panels, which will later become inaccessible, and therefore cannot readily be kept under observation and given repeated treatment—it will be necessary to use a liquid insecticide which will deposit in the treated object a residue of active material which can maintain over a prolonged period of time an insecticidal concentration high enough to reduce the likelihood of any recurrence of infestation.

This can be achieved by using substances which are less volatile. Thus, chlorinated naphthalenes are claimed to give continued protection against re-infestation, and special preparations containing organic derivatives of pentachlorophenol, such as lauryl pentachlorophenol, which are less volatile than the parent compound, may also be suitable for this purpose. Salts of pentachlorophenol, e.g., sodium pentachlorophenate, may be used in conjunction with BHC. Sodium pentachlorophenate is normally only available as an aqueous solution, and for the reasons mentioned above special care is necessary in its use. Alternatively, the solid salt could be dissolved for use as a 5 per cent. solution in methylated spirit. It must be emphasised that no liquid insecticide should be allowed to come into direct contact with painted or varnished surfaces. If this should happen accidentally, the liquid should be immediately wiped off.

Aftercare

Timber that has once been attacked by a pest has shown itself to be vulnerable, and as re-infestation may occur, a systematic examination should be carried out twice a year, preferably in spring and the late summer, to search for any signs of renewed activity. The signs may be new worm holes, or heaps of fresh wood powder or 'frass' resulting from the action of grubs. The chances of fresh infestation will be lessened if, after the insecticide treatment, the old holes are filled with a soft wax preparation which makes them no longer available to the female insect for egg-laying.

Summary

Fumigation.—This is the safest procedure and should be carried out if the painted woodwork is considered of sufficient value to warrant its use. There is little to choose between the three fumigants mentioned, apart from the reservation in connection with methyl bromide. Although 100 per cent. 'kill' is likely, no continued protection against re-infestation is given, and inspection is advisable at intervals after treatment.

Liquid Insecticides. — The use of aqueous solutions of insecticides should normally be avoided in the treatment of painted woodwork. Preparations in which the insecticide is dissolved in a volatile hydrocarbon solvent should be chosen. Insecticides which are recommended include pentachlorophenol, lauryl pentachlorophenol, chlorinated naphthalenes and sodium pentachlorophenate in conjunction with BHC, but these must not touch painted surfaces.

SECTION 3. Some Methods of Structural Repair

Nature of Damage

Something has already been said in the preamble to this Report (p. 1) of the architect's cares in surveying and reporting upon the fabric of a church. This, at his discretion, may involve special expenditure upon scaffolding or upon opening up the structure to facilitate further inspection and so to obtain more accurate information on which to base his specification of work to be done. Correct diagnosis of damage, whether caused by simple mechanical weakness, fungal or insect attack, or both, is imperative since it will determine the method of treatment and repair. Furthermore the method will be influenced by whether the damage is superficial (e.g., confined to sapwood on the edges of timbers) or deep-seated enough to render the structural members unsound, whether decay is slow or rapid, and whether the fungus or beetle is active or dead, naturally or as a result of previous treatment. Here, earlier reports, if they exist, will aid the architect. The historical or aesthetic value of the affected parts, too, must be recognised: visible members, carved, coloured or moulded work obviously require more care and conservative repair than concealed members, boarding or plain common rafters.

Causes and Cure of Damage.—Briefly summarised, apart from inherent structural inadequacies, the causes of deterioration are in the main dampness due to leaks in gutters, roofing, etc., or rising ground damp, lack of ventilation, and the use of sappy or unseasoned timber; these provide ideal conditions for fungal and insect attack. Equally briefly, elimination of the causes is achieved by stopping all leaks and rising damp, provision of additional ventilation where required, removal of all spongy timber and redundant sapwood, and treatment with fungicide or insecticide.

Structural repairs are the subject of this Section 3, but they are so often required to make good the damage caused

by fungi and insects that a note in supplementation of the descriptions of the special treatments in the appropriate Sections 1 and 2 of this Report may here be included.

Application of Fungicides and Insecticides.—It may be said that the best method of applying fungicide and insecticide solutions is by liberal brushing on, over a small area, again and again, until the timber has absorbed as much of the solution as possible. In practice this may prove too difficult or too expensive; then resort must be had to spraying. Large jets worked under low pressure are best, flooding the liquid gently on in such a way that splash and unnecessary waste are avoided. This last is most important near plaster or stone, which sometimes stain very readily. It is advisable to treat new timber for repairs with liquid insecticide by thorough brushing on, soaking in a bath, or pressure impregnation.

Fumigation against insects is seldom a practical possibility with structural timberwork, *in situ* or dismantled, but rather for the treatment of small objects that can be placed in fumigation chests. Nor does it stop reinfestation (see Section 2).

Principles of Repair

In deciding upon the minimum work of repair that will ensure stability of the building and arrest decay, the architect should have in mind the following principles:—

(1) to make the church structurally sound and watertight;

(2) to retain as much of the original materials as possible without undue risk of further failure, spread of rot or renewal of insect attack; always bearing in mind that further treatment may be necessary in later years to complete the destruction of insects, and advising his clients accordingly;

(3) to carry on the main lines of the design in all reparation, but not necessarily to attempt to repeat details of carvings and mouldings, unless fundamental to the composition;

(4) to ensure that, subject to (3), the repairs are made as inconspicuous as possible and in harmony with the original material, but in such a manner that they can be recognised on close examination. Incised dating of new materials would be an aid to future surveys.

Method of Repair

In general, allowing for the overriding practical requirements of access, protection from weather, handling of materials, etc., building work should be so planned that services can be continued without undue inconvenience. With ingenuity, methods of repair may often be devised that obviate the need for expensive scaffolding or shoring, but special precautions usually remain essential against the spread of dust, especially anywhere near organs.

In the Middle Ages the timbers used in buildings were nearly always larger than necessary structurally. Even therefore after treatment requiring the removal of sapwood and other defective parts, the timber left, if in good condition though mutilated, may still be fully able to bear the stresses and strains exerted upon it. This may be checked by measurement and by reckoning the size of timber that would be put in a comparable position in a modern building, where timber of a much lower quality is often accepted.

Old timber should have the sapwood carefully scraped away where practicable with a rather blunt tool, so that the sound wood is not damaged, restraint being exercised where carved or painted enrichment is involved. Jointing that achieves retention of the highest proportion of old timber without loss of essential strength calls for much ingenuity: members can be built up of pieces bolted together and spliced to the old timber; rafters usually defective at the feet, beams usually at the bearings, can have short lengths of new timbers spliced on to replace the decayed parts, using a scarfed joint; beams decayed in the core can be repaired by cutting away the centre part, leaving a profile thickness, and inserting new timber or metal flitch plates; these and other typical methods of repairs are illustrated in A. R. Powys's *Repair of Ancient Buildings,* figs. 24, 25, 26. New techniques, for example laminated construction with the recently developed water-resistant glues, timber connectors, etc., offer other possibilities.

The use of metal straps is to be avoided where other methods of strengthening are possible, though it may be justifiable purely to take up tensional stresses. If ironwork is introduced, those parts touching oak or unseasoned wood should be painted with a bituminous paint to prevent corrosion by acids.

Wall-plates and the soles of parapet-gutters are prone to trouble and can, with advantage, be modified, concrete being substituted for timber-framing (see A. D. R. Caroe, *Old Churches and Modern Craftsmanship,* fig. 25).

Other methods of repair are suggested and described in the two books named above. Nearly always the architect must restrain the natural tendency in the conscientious builder, and perhaps even more in the less conscientious, to 'make a job of it while he is at it' and 'leave it all as good as new,' where the ideal is careful patching and piecing up. Unless the craftsmen have worked for the architect on similar repairs before, this tendency can only be restrained by the closest supervision, at least in the early stages.

Many shingle spires throughout the country have been attacked by woodpeckers. This may be due to the presence of swarming flies between the shingles and the close boarding behind, or to extensive beetle infestation.

New timber used in repairs that can always be seen should be of the same kind as the original timber and well seasoned. A repair may become ineffectual if the new wood shrinks or swells unduly, with possibly disruptive effects in framed structures or to diagonal members such as braces.

Air-seasoned timber usually contains between 17 per cent. and 23 per cent. of moisture, and dry rot fungus will not flourish with a moisture content of 20 per cent. or less (but see Section 1). New timber used in repairs to churches should therefore either be very thoroughly air-seasoned or moderately kiln-dried, down to say 16 per cent. moisture content. New oak must be as free from sapwood as possible. New softwood can be impregnated with preservative under pressure, though there is little advantage in such treatment for hardwoods.

Old oak should *not* be oiled or stained; the only treatment necessary is to clean with a dry brush and perhaps to give a light dressing of thin beeswax. The practice of 'feeding' oak with linseed oil is to be deprecated; it is not necessary for preservation of the wood and only creates a sticky surface that collects dust and dirt. New timber should not be adzed in an attempt to imitate the surface treatment of old work. The modern coarse-cut saw produces a surface texture, quite unexceptionable for new work in an old roof, that, on close examination, reveals its date.

Roofs are sometimes taken right down for repair, but this usually results in more extensive renewal than is absolutely necessary. It is better to strip only a small area at a time, providing temporary cover with metal sheeting or tarpaulins, storing the boarding for re-use and numbering the rafters, if removed, so that they can be replaced in their original positions. Every effort should be made to repair the timbers of framed trusses while in position, and purlins can usually be repaired *in situ*. Work is best carried out from a staging set up at a convenient level just beneath the roof. Only if a roof-truss has spread, with tenons withdrawn and pegs broken, is reframing justified.

Fittings and joinery of any age in churches often exhibit damage by rot or beetles, or rough usage, either wilful or accidental. Panelling and bench-ends against damp walls, flooring and pews in contact with rising damp, are susceptible to fungal attack and insect infestation. The treatment is described in Sections 1 and 2 of this report; the repairs are in general the same as for structural timber. Carved panels that are decayed should have the affected wood carefully scraped or planed off the back and then be stiffened or mounted on new backing. For painted woodwork see the Supplement to Section 2. It is right, when repairing elaborately moulded or carved woodwork, to maintain the unity of the design, and accordingly on occasions some new carving may be necessary; subject to this, reproduction and conjectural restoration should be avoided. Here the craftsman's temptation 'to make a good job of it' is almost overpowering!

Ventilation of Timbers

Good ventilation should be provided about all woodwork, and especially at the ends of beams and other members housed in or resting on walls, by leaving a space around the timber instead of pinning it up tight in the masonry or brickwork. Timbers bearing on walls should be set up on a waterproof pad, say, a strip of thick bituminous felt, not on sheet lead, which

is liable to change to a white powder under the action of the tannic acid in oak.

Available Funds and Economies

If cost is to limit the extent of repair work, it is better to repair part of the building properly and secure the rest temporarily with props or cradles until more money is in hand, than complete the whole of the work in a less careful and substantial way.

After the previous paragraph it may appear, indeed it is, high optimism to say that in planning repair work the incumbent and the Parochial Church Council, in collaboration with their architect, should also consider desirable changes, structural and liturgical, that might be made at the same time. Yet, undertaking the two tasks together will show great (if long-term) economy, and moreover will only disrupt routine once instead of twice.

SECTION 4. Damage to Books by Insects and its Treatment

Books and Registers kept in churches may be attacked by a variety of insects. Possibly the worst is the brown house or false clothes moth; the caterpillar attacks bindings, both leather and cloth; it may bore through the pages and often makes holes in the hinge where the boards join the back. The common clothes moth can also attack bindings. The common furniture beetle damages books, but usually when the adult is trying to emerge from woodwork and finds a book in the way. Certain spider beetles will attack bindings and paper. Silver-fish, which sometimes attack the glue or gum in book bindings, attack particular types of paper; they leave a lace-like pattern of destruction and fretted edges to the pages; in general they do not do extensive damage in this country. Both the common and German cockroaches can damage buildings and paper; bindings often have a blotchy appearance as a result of their activities.

Prevention of attack.—Books in constant use are seldom, if ever, attacked; the more they are moved the safer they are. They should never be packed tightly into book shelves, for that allows insects to emerge from the woodwork into them or to climb between the closely-packed volumes and thus damage the boards. Urea formaldehyde resins with various insecticides incorporated in them seem promising for the treatment of shelves, and would kill any insects that come in contact with them, but their use is still in the experimental stage, and they are expensive. If books are damaged and active infestation is feared, they can be fumigated as described in Section 5, in airtight containers with paradichlorobenzene crystals at a concentration of 1 lb. to 10 cubic ft. of air space. The cupboards or chests, sealed with gummed tape, should be left for a fortnight in a warm room.

SECTION 5. Damage to Fabric Furnishings by Insects and its Treatment

Most churches contain woollen materials, tapestries, curtains, carpets, rugs, hassocks, kneelers, runners, cassocks, vestments, etc., and all these are liable to attack by the clothes and house moths and carpet beetles. These insects will do much damage if left undisturbed, but fortunately they are fairly easy to control: they are unlikely to attack materials in constant use. Cassocks worn frequently or carpets walked upon constantly will remain free, but carpets under desks or other pieces of furniture or their edges, where untrodden, are very liable to attack.

The best long-term policy for the protection of such materials is moth-proofing. This can be done in the process of manufacture, and materials are obtainable so treated that will remain immune from insect attack for as long as they themselves remain serviceable. Existing articles can be treated, sometimes *in situ*, with one of the penthachlorophenates as the toxic substance; but the treatment must be thorough, and it is wise to leave it to firms that do such work. It is not so stable as that done in the dye-bath, but is reasonably permanent, provided the materials are not subsequently dry cleaned, or washed, though they are said to be able to undergo some cleaning without loss of resistance. The cost of treatment varies with the amount of work to be done and where; 2s. 6d. to 3s. 6d. per square yard of material to be treated is an approximation.

Articles that do not merit the expense of moth-proofing can be protected with 0.5 per cent. dieldrin in white spirit. Many proprietary insecticides on the market contain the necessary chemicals and their names may be obtained from the Central Council for the Care of Churches.

Materials kept in store or used only occasionally can be protected by placing with them paradichlorobenzene crystals at a concentration of 1 lb. to 10 cubic ft. of air space; books may be protected in the same way. They must be in reasonably airtight chests or cupboards since it is the high concentration of vapour given off by the crystals that protects. In a leaky container the vapour may drop below the lethal concentration and afford no protection. The crystals should be renewed from time to time as they vaporise away. Paradichlorobenzene has a pungent smell that clings, but clothes may be rid of it by hanging them out in the fresh air.

Carpets not in use can be protected by rolling them up in cotton sheets, for clothes moths do not attack cotton, but it is wise to put paradichlorobenzene crystals in with them in case any grubs or eggs have been overlooked.

Small articles are protected by wrapping them in stout paper or newspaper without tears and gumming up the package, care being taken to see that they are free from insects before wrapping.

SOME BOOKS FOR REFERENCE

HISTORICAL

F. H. Crossley, *Timber Building in England* (Batsford, 1951). 30s.

F. H. Crossley and F. E. Howard, *English Church Woodwork and Furniture* (Batsford, 1917). Out of print.

REPAIR

A. R. Powys, *The Repair of Ancient Buildings* (Dent, 1929), Out of print.

A. D. R. Caroe, *Old Churches and Modern Craftsmanship* (Oxford U.P., 1949). 18s.

TIMBER PESTS

Timber Development Association, Ltd., *Timber Pests* (1945). Free.

W. P. K. Findlay, *Dry Rot and Other Timber Troubles* (Hutchinson, 1953). 25s.

Forest Products Research Laboratory of the DSIR, *Dry Rot in Wood* (Bulletin No. 1). 2s. This covers all common forms of rot in structural timbers.*

Forest Products Research Laboratory of the DSIR, *Beetles Injurious to Timber and Furniture* (Bulletin No. 19). 3s.*

Forest Products Research Laboratory of the DSIR, *Dry Rot in Wood; Recognition, Prevention and Cure* (Leaflet No. 6). Free.

Also Forest Products free leaflets:†

No. 3 *Lyctus Powder-post Beetles.*

No. 8 *The Common Furniture Beetle*

No. 4 *The Death-Watch Beetle.*

No. 14 *The House Longhorn Beetle.*

The British Museum (Natural History) *Furniture Beetles* (Economic Series No. 11). 1s.

E. C. Harris, *Vermin in Buildings. Part II. Insects Injurious to Woodwork in Buildings.* (Journal RIBA (3rd series), Vol. 60 Pt.V, 1953).

R. C. Fisher, *Household Timber Insects; Recognition, Prevention and Control of Infestation.* (Sanitarian, Vol. 58, Pt. II, 1949).

OTHER PESTS

The British Museum (Natural History) *Carpet Beetles* (Economic Series No. 8). 2d.

The British Museum (Natural History) *Clothes Moths and House Moths* (Economic Series No. 14). 9d.

TOWN PLANNING DECISION

Builders' Appeal to Retain Badly Sited Garage Dismissed

DISMISSING an appeal by Messrs. Thomas and Son (Builders), Ltd., the Minister of Housing and Local Government has agreed with Coulsdon and Purley Council that permission for a garage at a new bungalow in Mountwood-close, Sanderstead, should be refused because of its bad position.

The garage had been built close to the boundary line with the adjoining plot but wholly in front of the garage on this plot. In addition to protruding in front of the bungalow it was intended for, it 'boxed in' the approach to the garage and front door of the adjacent house.

The Minister gave it as his opinion that the placing of the garage in this position detracted from the appearance of the street as a whole.

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*Obtainable from HM Stationery Office.

†Obtainable from Forest Products Research Laboratory, Princes Risborough, Bucks.

DEMOLITION OFFENCES

Firm Fined on Two Charges

GAINSBOROUGH Industrial Co-operative Society were fined a total of £20 at Gainsborough on September 3 on two charges in connection with the demolition by workmen of the society of an old malt kiln on the side of the River Trent in the town. They were charged with failing to post in a prominent position on the site the name of a competent person experienced in demolition, and with demolishing a building without the work being supervised by a competent foreman or chargehand. They pleaded guilty to the former, and not guilty to the latter, charge. The prosecution was brought under the Factories Act.

MR. W. S. MOORE, District Inspector of Factories, said the malt kiln was an unusual type of building owned by the society, and demolition involved pulling down vaulted arches. While this was being done a number of workpeople had a narrow escape from injury, and a 19-year-old youth with no demolition experience sustained injuries which by a miracle were only slight.

He submitted that there was no competent foreman or chargehand to carry out the operation, and said that MR. Harold Thomas Sleight, employed by the society, was taken to the site in Gaskgate-street by the works department manager, Mr. A. J. Atkinson, and told what to do. Sleight was then left and, Mr. Moore alleged that while he had worked for the society knocking down ordinary walls, he had no experience of archways and fire kilns.

The society were fined £5 for failing to display a name, and £15 for demolishing the building without the work being supervised by a competent foreman or chargehand.

CONTRACTORS FINED

Cable Faults on Site

FINES of £5 on each of three summonses for alleged contraventions of the Factories Act at Queen Elizabeth's-close, Stoke Newington, where they were engaged on the erection of four blocks of flats, were imposed at North London Magistrates' court on September 3, on Messrs. M. J. Gleeson (Contractors), Ltd., of Harewood House, London-road, North Cheam, Surrey. The company were ordered to pay £5 5s. costs on each summons.

For the prosecution, MR. V. C. JORDAN, a factory inspector, said that for the general purposes of work on the site last July, such as the operation of power hammers, a temporary supply of electricity was necessary. AC current was supplied by the London Electricity Board. The supply was taken by a cable from a point in Queen Elizabeth's-walk to a canteen on the site, where a distribution switchboard was provided.

In a detailed outline of the installation, Mr. Jordan said that complaint was made that one cable could only be switched off at the main, that other cables were not supplied with sufficient fuses, and that one cable was broken, so that the metal casing of a switchboard was no longer earthed.

Replying to the magistrate (MR. SEYMOUR COLLINS), he said that an inspection was carried out after there had been a fatal accident. The summonses, however, did not relate to the accident.

MR. J. HAYMAN, defending counsel, who entered a plea of guilty on behalf of the defendant company to all three summonses, said it was a very large organisation. At the London branch some 1,600 men were employed. There were other branches in Sheffield and Manchester, and work was carried out all over the country.

Mention had been made of an accident, but he would emphasise that there were no summonses before the Court under the Factories Act regarding that matter. The company in no way wished to avoid its responsibilities in connection with the summonses, but the work was installed 'in a rather incompetent way' by a sub-contractor. This sub-contractor was a registered electrical contractor, who had worked on different sites for the company, and had always given satisfaction. When the defendant's foreman took over, he looked at everything, and so far as he could see it appeared to be in order.

GARAGES FOR LETTING

New Legislation Expected

From a Correspondent

PLANNING officials are hopeful that the new Bill which Mr. Henry Brooke, the Minister of Housing and Local Government, is expected to introduce next session to amend the planning laws will give their local authorities power to provide garages or sites for letting to people who are not council house tenants.

If the Bill does provide for this the clause, although likely to be opposed in some quarters, will almost certainly receive a welcome from road safety experts, planners, housing managers and others in the municipal field.

Representatives of local authorities and officials have long been pressing Mr. Brooke for this power. They have pointed out that there is a 'strange anomaly' in the law which gives them the right to provide garages for council house tenants but not for anyone else.

'The Minister turned the idea down when we first put it to him,' an official of the Association of Municipal Corporations stated. 'He said there was no real evidence of the need for this power but that he would look at the matter again if this evidence were forthcoming.'

The association then circularised its members asking for their comments and seeking in particular details of whether the councils had any demand for private garages and whether they would use the powers if granted.

Said the official: 'More than 180 member corporations indicated that they would welcome or support the introduction of legislation, and we naturally again got on to the Minister. His reply was that the association's views would be borne in mind when amending legislation was contemplated.'

CLEAN AIR CAMPAIGN IN NORTH-WEST

Minister of Power on 'Old-fashioned Open Fires'

THE Clean Air Campaign in South-East Lancashire and Cheshire was inaugurated in Manchester on September 3 by the Minister of Power, Lord Mills. Opening the first exhibition of the series that have been arranged in the area by the National Smoke Abatement Society at the Free Trade Hall, Lord Mills said: 'The Clean Air Act has not been in force very long, but I understand that in the first seven months of this year the Minister of Housing and Local Government has received proposals for smoke control areas from some 14 districts in London as against 8 in the north-west.

'I am not, as you know, the Minister directly responsible for the Government clean air policy. But for all that, as Minister of Power, I have a vital interest in the success of that policy from economic reasons, just as the Minister of Health has an interest on health grounds. I am, of course, concerned to see that we do not waste our precious heritage of coal. It is the use of coal, or rather this misuse of coal, which is responsible for much of smoke pollution.

'Whenever we see dark smoke coming from a chimney it is fairly certain that fuel is being wasted. Burning coal in the old-fashioned open fire grate is inefficient as well as being a prime cause of smoke pollution. The creation of smoke control areas will not only increase the use of smokeless fuels, which by their nature lend themselves to more efficient use, but will also provide the opportunity for the installation of more efficient fireplaces and equipment.'

The exhibition, at Bolton, closes to-day (September 13) and others arranged will be in Bury, Oldham, Rochdale, St. Helens, Salford, Stockport, Warrington and Wigan. The mobile units will, in addition, tour smaller towns and suburbs around these main centres.

BIRMINGHAM'S OVERSPILL

Talk with Anglesey Officials

PLANS for the possible movement of Birmingham overspill—industry and people—to Anglesey were carried a step further on September 4 at a meeting between officials of the two authorities.

After the meeting, SIR HERBERT MANZONI, Birmingham City Engineer, said: 'There seems every prospect of being able to go further with arrangements that could help those areas. We find our needs are complementary.'

Anglesey needs industry and up to 10,000 people from 'exporting authorities.'

Sir Herbert said: 'How far Birmingham can help depends upon what industry is prepared to move.'

The Late Edward Wrench

The directors of Engert & Rolfe, Ltd., Poplar, regret to announce the death of their old friend and colleague Mr. E. Wrench, of Bristol, who died on Tuesday, August 27, aged 82 years. Mr. Wrench had been associated with the company for over 50 years.

New Strip Caulking Material

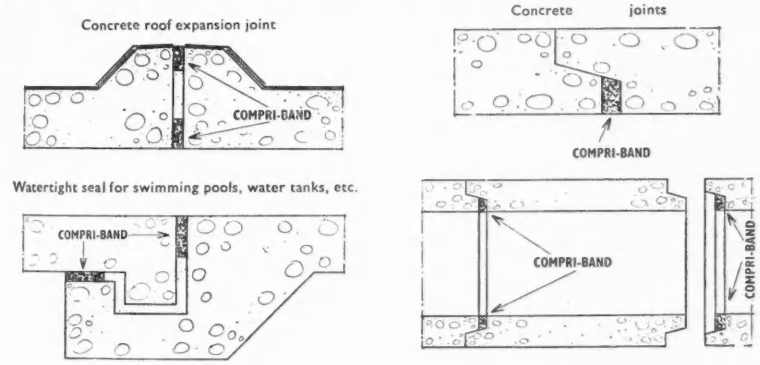
CLAIMED to be suitable for sealing any type of joint in the building industry and to represent a great advance in this sphere, a type of caulking strip has recently been developed in Holland by Comprifalt C.V., of Rotterdam. As well as providing an absolute seal for such joints as in concrete or earthenware pipelines, expansion joints, etc., the strip is so easily applied that a very substantial labour saving is also said to accrue. Used in conjunction with a special adhesive it can be applied between materials of differing natures such as concrete and wood, steel and concrete, etc.

Known as 'Compri-Strip,' the new caulking material is made in any desired size and length. One of the features of the new material is its great elasticity. For instance, if 2 in. by 2 in. strip were used between two concrete surfaces, or between bricks, pipes, etc., and, for this purpose, was compressed from 2 in. to ¼ in. between the two surfaces, it would subsequently revert, within a few hours, to the 2 in. size when months or even years later the pressure on the strip was released. Furthermore, the strip is just as elastic in winter as in summer.

Another feature of the Compri-strip is that when compressed it does not yield laterally. Thus, for instance, in pipe laying, none of the strip comes through on the inside of the pipe joint and this is so, even when 4 in. strip has been compressed to ¼ in.

Weighing only 6 lb. per cubic foot of material, the strip, when compressed to 20 per cent. of its initial thickness, is perfectly watertight and it is capable of resisting a pressure of approximately 125 lb. psi without losing any of its useful properties. It is said to be acid proof, alkali proof, rot-proof and heat resistant up to 300 deg. F.

One of the outstanding applications of the use of Compri-Strip in Holland has been for the sealing of the concrete expansion joints, totalling about 1,500 metres (1,600 yards) in length, at the Feyenoord Football Stadium at Rotterdam. Because of the difference of temperature between the morning and afternoon, these expansion joints had been left ½ in. to 1 in. wide and all the seals previously used had soon begun to show leaks. The joints were then fitted with 2½ in. thick strips of the new material and have since been 100 per cent. sealed.



Placing a length of 'Compri-Strip', precompressed, in an expansion joint already prepared with adhesive. The strip attempts to recover its former dimensions, thus forming the seal

BRITISH STANDARDS

Institution's Report on Busy Year

SALES of more than a million copies of British Standards, and new issues bringing the total number of current standards to over 3,000 are among the achievements recorded in the annual report of the British Standards Institution for the year ended March 31 last, which is to be presented to the Institution's members at the annual meeting on September 24. The number of subscribing members supporting the Institution —over 9,000—is also the highest yet reached.

The report's 270 pages show developments over the whole range of industry. The introductory section mentions achievements in both traditional and newly established industries, the former including the start of work on three new standards for colliery equipment, and the latter covering the preparation of standards for automation and nuclear energy. To promote the wider use of standards in industry the Institution has contributed to new training courses concerned with Standardisation, Simplification and Specialisation—known as the ' three S's.'

Standards Projects in Hand

The main body of the report gives a detailed review of the standards projects completed and in hand for the 60 major industries served, and of which the following may be cited as examples:—

Automation—a start on standards for punched cards and paper tape; *Coal Mining*—new committee at work on specifications for underground conveyor chains, steel arches, components for pit tubs; *Nuclear energy*—work in hand on safety standards for those engaged in industrial radiography; *Air pollution*—two standards published: for smoke indicators and smoke viewers; *Steel sections*—work begun on specification for cold formed steel sections used in building; and *Steam generators*—standard test code to be published shortly.

In the comprehensive reports of standards progress in the main industrial divisions of BSI a new, at-a-glance system has been introduced into the report by which readers can see immediately what stage has been reached in the preparation of any particular standard.

The international section of the report contains details of the year's activities in ISO and IEC Committees—including that on safety colours; and on rubber, with agreement on a wide range of methods of test. Accounts are also given of the meetings of the CEE (International Commission on Rules for the Approval of Electrical Equipment).

The report has gone out to all subscribing members of BSI. Additional copies are available from the Sales Branch, British Standards House, 2, Park-street, W1, price 7s. 6d.

COMPANY NEWS

Austins of East Ham, Ltd., have recommended a final dividend of 7½ per cent., less tax, on the ordinary shares of the company for the year ended March 31.

The Builder

CURRENT PRICES OF MATERIALS

THE information given on these pages has been specially compiled for *The Builder* and is copyright. It is the intention that the details given should indicate fair average prices of materials, not necessarily the highest or the lowest. The prices apply to large quantities of materials loaded at works, delivered at London Stations or at site in London Area as stated. Prices for smaller quantities ex merchant's warehouse will necessarily be higher so as to include the stocking and handling costs involved. Due to the exceptional circumstances now prevailing it is recommended that the prices of materials should be confirmed by inquiry from suppliers and merchants.

AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

	£	s.	d.
Pit Ballast ... ... per yd.	1	7	1
Pit Sand ... ... ,,	1	4	6
Washed Sand ... ... ,,	1	7	8
¼ in. Shingle ... ... ,,	1	4	0
¼ in. Broken Brick ... ... ,,	1	0	9
Pan Breeze ... ... ,,		10	9
Fine or Coarse Foamed Slag Aggregate ... ... per ton	3	5	0
2 yds. of fine and 2.6 yds. of coarse per ton.			

CEMENT, etc.

Including non-returnable jute sacks or paper bags.

	£	s.	d.
Best British Portland Cement. Standard Specification delivered Charing Cross area.			
6-ton loads and upwards, site ... ... per ton	5	12	0
1 to 6 tons, site ... ... ,,	6	4	0
Rapid Hardening Cement in 6-ton loads and upwards to site ... ... ,,	6	2	6
1 to 6 tons do. site ... ... ,,	6	14	6
Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices.			
Sulphate Resisting Cement. 32s. 6d. per ton on ordinary cement prices.			
Red, Buff or Khaki Colorcrete in 6-ton lots ... ,,	8	12	0
Other colours according to colour.			
In 4-ton lots from 310s. 0d. to 780s. 0d. per ton.			
White Portland Cement ... ... ,,	13	17	6
Under 1 ton ... ... per cwt.		16	11
417 Cement (Ultra Rapid Hardening) in 6-ton lots and upwards ... ... per ton	7	4	6
Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.			
Cullamix Tyrolean Finish, £11 10s. 0d. to £14 5s. 0d. (1-ton loads and upwards).			
Lightning and Ciment Fondu Brands High Aluminous cement, 6-ton lots and up ... ... ,,	15	14	6
Stourbridge Fireclay, 6-ton loads at Railway Depot, London ... ... ,,	6	17	6
Moler Mortar Powder for Flue Bricks (London sites) ... ... per cwt.	1	10	0

BRICKS

	£	s.	d.
Full Loads.			
First Hard Stocks ... ... per 1,000	13	14	6
Second Hard Stocks ... ... ,,	12	13	6
Mild Stocks (Kiln Burnt) ... ... ,,	9	4	0
Mild Stocks ... ... ,,	8	19	0
All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.			
2⅝in. Nominal Fletton Bricks to sites in W.C.			
District Commons ... ... ,,	5	18	0
Cellular do. ... ... ,,	5	18	0
Keyed do. ... ... ,,	6	0	0
Rustics ... ... ,,	7	10	0
Cellular Rustics ... ... ,,	7	10	0
Single Bullnose Commons ... ... ,,	7	12	6
Sandfaced ... ... ,,	8	10	0
Tuscans ... ... ,,	9	5	0
Saxons ... ... ,,	9	13	0
Golden Buffs ... ... ,,	10	0	0
Dapple Light ... ... ,,	10	7	6
Best Blue Pressed Staffs (London Stations) ... ,,	29	15	6
,, Bullnose (London Stations) ... ... ,,	30	9	6
Blue Wire Cuts (London Stations) ... ... ,,	26	15	6
Midhurst Lime Bricks (London sites) ... ... ,,	10	15	6
Uxbridge Whites (London sites) ... ... ,,	10	2	0
Special Purpose Sandlime Bricks (London sites) ... ,,	7	18	6
2½ in. Best Stourbridge Fire Bricks (London Stations) ... ... ,,	29	9	9
3 in. do. (London Stations) ... ... ,,	35	7	9
2⅞ in. Moler Flue Bricks (London sites) ... ... ,,	36	0	0
2⅝ in. Machine-made Sandfaced Red Facings (London sites) ... ... ,,	15	18	6
2½ in. Machine-made Multi Red Facings (London sites) ... ... ,,	16	3	6
2⅝ in. Hand-made Sandfaced Red Facings (London sites) ... ... ,,	15	18	6
2⅝ in. Hand-made Sandfaced Multi-Colour Facings (London sites) ... ... per 1,000	16	13	6
Hand-made Sandfaced Cherry Red Facings, Berkshire district (London sites) ... ... ,,	18	14	0
Hand-made Sandfaced Multi-Colour Facings. Berkshire district (London sites) ... ... ,,	18	14	0
Rubber Bricks for gauged arches (London sites) ... ,,	42	17	6
2⅝ in. Surrey Clamp Burnt Multi Stock Facings (London sites) ... ... ,,	14	4	0
2⅝ in. Surrey Kiln Burnt Multi Stock Facings (London sites) ... ... ,,	15	16	0
Glazed Bricks (London sites), White, Ivory, Brown—			
Stretchers ... ... ,,	64	0	0
Headers ... ... ,,	63	0	0
Quoins, Bullnose and 4½ in. Flats ... ... ,,	80	0	0
Double Stretchers ... ... ,,	85	0	0
Double Headers ... ... ,,	77	10	0
One side and two ends ... ... ,,	87	0	0
Two sides and one end ... ... ,,	89	10	0
Splays and Squints ... ... ,,	83	0	0
Cream and Buff £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 32½% for Best quality and plus 32½% less 10% for Second quality.			

PARTITION SLABS, etc.

Delivered Central London Area. (W.C. District.)

	£	s.	d.
HOLLOW CLAY PARTITION BLOCKS (Keyed)			
Minimum lorry loads			
*2 in. ... ... 140 yds. ... ... per yd. sup.		4	5
*2½ in. ... ... 140 yds. ... ... ,,		4	8
*3 in. (3 cavity) ... 120 yds. ... ... ,,		5	5
BUILDING BLOCKS (Keyed)			
*3 in. (6 cavity) ... 110 yds. ... ... ,,		5	7
*4 in. (6 cavity) ... 95 yds. ... ... ,,		6	10
6 in. (8⅓ in. × 5⅝ in.) 1,250 blocks ... ... per 1,000	26	18	0
*Half blocks at no extra charge.			
CLINKER CONCRETE			
2 in. ... ... 100 yds. ... ... per yd. sup.		3	9
2½ in. ... ... 85 yds. ... ... ,,		4	4
3 in. ... ... 75 yds. ... ... ,,		5	3
4 in. ... ... 55 yds. ... ... ,,		6	5
CRANHAM			
2 in. ... ... ,,		6	9
2½ in. ... ... ,,		7	5
3 in. ... ... ,,		8	9
4 in. ... ... ,,		10	9
4½ in. Load bearing quality ... ... ,,		11	10
MOLER PARTITION BLOCKS			
2 in. ... ... 150 yds. ... ... ,,		15	0
2½ in. ... ... 120 yds. ... ... ,,		15	6
3 in. ... ... 100 yds. ... ... ,,		16	0
4 in. ... ... 90 yds. ... ... ,,		19	0
LIGHTWEIGHT CONCRETE BUILDING AND PARTITION BLOCKS OF VARIOUS SOURCES OF MANUFACTURE			
2 in. ... ... 100 yds. ... ... ,,		5	10
2½ in. ... ... 80 yds. ... ... ,,		7	0
3 in. ... ... 65 yds. ... ... ,,		8	2
4 in. ... ... 50 yds. ... ... ,,		9	8
4½ in. ... ... 44 yds. ... ... ,,		10	4
6 in. ... ... 33 yds. ... ... ,,		13	10½
THERMALITE-YTONG PARTITION BLOCKS			
2½ in. ... ... 144 yds. ... ... ,,		7	0
THERMALITE-YTONG LOADBEARING INSULATING BLOCKS			
3 in. ... ... 120 yds. ... ... ,,		8	5
4 in. ... ... 90 yds. ... ... ,,		11	0
5 in. ... ... 72 yds. ... ... ,,		13	9
6 in. ... ... 60 yds. ... ... ,,		16	6
8½ in. ... ... 42 yds. ... ... ,,	1	3	8
FLOOR BLOCKS AND FILLER TILES			
3 in. Floor Blocks 12 in. by 12 in. delivered in full lorry-loads ... ... per 1,000	34	1	0
4 in. do ... ... ,,	36	10	0
5 in. do. ... ... ,,	43	15	0
6 in. do. ... ... ,,	49	19	0
7 in. do. ... ... ,,	61	8	0
8 in. do. ... ... ,,	71	19	0
12″ × 3″ × ⅝″ Filler Tiles in multiples of 10 tiles per 1,000 multiples	42	15	0
12″ × 4″ × ⅝″ do. do.	73	15	0

STONEWARE DRAIN PIPES, etc.

The following are the percentages to be added to the Revised Standard List (Nov., 1956) prices delivered London Area.

Delivered ex Merchants Wharf or Depot or Manufacturers Works.

	Over 2 tons	Over 100 pieces Under 2 tons	Under 100 pieces Under 2 tons
Best Quality ...	−2½%	+15%	+22½%
BSS Best do. ...	+10% −2½%	+10% +15%	+10% +22½%
Tested Quality ...	+37½% −2½%	+37½% +15%	+37½% +22½%
BSS Tested do.	+47½% −2½%	+47½% +15%	+47½% +22½%

STONEWARE DRAIN PIPES, etc.—*continued*

	£	s.	d.
3 in. Land Drain Pipes (in 12 in. lengths) ... per 1,000	11	10	6
4 in. do. ... ... ,,	15	3	6
6 in. do. ... ... ,,	31	9	0
9 in. do. ... ... ,,	59	13	0

DAMP COURSE

Hessian base bitumen 7 lb. per yd. sup. in 24 ft. rolls cut to wall widths in lots of £6 value and over delivered London area ... ... per yd. sup.		3	5½
Asbestos base ditto 7 lb. per yd. sup. do. do. ,,		5	3
Lead lined bitumen ditto 9½ lb. per yd. sup. do. ,,		12	2
18 in. × 9 in. British damp course slates ... ... per 1,000	43	8	11
14 in. × 9 in. do. do. ... ... ,,	32	8	2
9 in. × 9 in. do. do. ... ... ,,	18	18	9
18 in. × 4½ in. do. do. ... ... ,,	19	19	9
14 in. × 4½ in. do. do. ... ... ,,	15	18	3
9 in. × 4½ in. do. do. ... ... ,,	10	14	3

STONE

Bath Stone—			
Monks Park ... ... per ft. cube		9	4
St. Aldhelm Box Ground ... ... ,,		10	7
Delivered in railway trucks at South Lambeth B.R. Western Region.			
Doulting Stone Random Blocks. Delivered London area ,,		9	2
Beer Stone. Delivered London area ... ... ,,		8	9
Portland Stone—			
Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region ... ... ,,		8	8
Yorkshire Stone—Blue Robin Hood Quality. Delivered to site London in 6-ton lots.			
9 in. × 3 in. Rubbed, weathered, throated and stooled cills ... ... per ft. cube	4	1	9
12 in. × 6 in. do. do. ... ... ,,	2	18	3
12 in. × 3 in. Plain coping, twice throated ... ... ,,	2	5	3
12 in. × 3 in. Weathered and twice throated coping ,,	3	0	3
14 in. × 6 in. do. do. ... ... ,,	2	14	3
4½ in. × 9 in. Plinth rubbed on top and face ... ,,	2	8	6
3 in. sawn two sides Slabs, random sizes ... ... per ft. sup.		8	8
Templates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork ... per ft. cube	1	9	9
do. do. fair one edge for fair faced brickwork ... ... ,,	1	15	3
Hard York—			
12 in. × 2 in. Square Steps, rubbed on top and edge per ft. run		10	6
14 in. × 3 in. Round-nosed Steps, rubbed on top and front ... ... per ft. cube	2	15	6
12 in. × 6 in. Plain Steps, rubbed top and front ,,	2	8	6
2 in. Rubbed and Jointed Paving, given sizes ... per ft. sup.		9	9
2 in. Sawn Paving, edges squared, in random sizes per yd. sup.	3	8	6

TILES AND PANTILES

Delivered London area by road in 6 tons or over per 1,000			
Machine-made Pantiles and French pattern Tiles from Lincolnshire district	29	19	0
Hand-made Pantiles Berkshire district	55	18	0
Hand-made Double Roman Bridgwater district	60	11	6
Hand-made 10½ × 6½ tiles Berkshire district	15	9	0
Machine-made 10½ × 6½ Staffordshire district	14	13	6
Hand-made Hip and Valley tiles per doz.	1	11	3
Machine-made Hip and Valley tiles do.	1	9	6
Concrete tiles 10½ × 6½	8	10	0
do. Interlocking (49S)	19	16	6

NOTE.—Breakage in transit, purchasers' responsibility.

SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.			
24 × 12	143	15	10
22 × 12	116	17	4
22 × 11	105	10	10
20 × 12	99	0	1
20 × 10	94	16	9
18 × 10	65	16	9
18 × 9	57	14	0
16 × 10	51	17	0
16 × 8	40	11	9

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

Softwood—				
Joinery quality	Ex Wharf	per standard	£115 to £140	
Carcassing quality	do.	,,	£97 to £102	
1 in. Tongued and Grooved Flooring	do.	,,	£110	0 0
Hardwood—				
Mahogany—African S.E.	do.	per ft. cube	1	10 0
do. Honduras do.	do.	,,	3	5 0
Oak European do.	do.	,,	2	5 0
do. Japanese do.	do.	,,	2	10 0
do. English Logs sawn	do.	,,	2	0 0
Teak 8 in. average S.E.	do.	,,	3	17 6
Walnut African Logs sawn	do.	,,	1	5 0

DOORS (in Lots I-II)

Delivered London area			
1½ in. 4 Horizontal Panel. Pattern 4 in. deal			
2 ft. 0 in. × 6 ft. 6 in. ... ... each	1	16	0
2 ft. 3 in. × 6 ft. 6 in. ... ... ,,	1	17	6
2 ft. 6 in. × 6 ft. 6 in. ... ... ,,	1	18	6
2 ft. 9 in. × 6 ft. 6 in. ... ... ,,	2	0	6
2 in. do. but top panel open. Pattern 4 × G in deal			
2 ft. 6 in. × 6 ft. 6 in. ... ... ,,	2	9	0
2 ft. 9 in. × 6 ft. 6 in. ... ... ,,	2	11	6
2 in. 2 Panel top panel open. Pattern 2 × G in deal			
2 ft. 6 in. × 6 ft. 6 in. ... ... ,,	2	3	0
2 ft. 9 in. × 6 ft. 6 in. ... ... ,,	2	5	0

SUNDRIES

Delivered London area.			
1 in. Wood Wool Slabs 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton) ... ... per yd.		6	2
1½ in. do. (67 yds. to 1 ton) ... ... ,,		8	0
2 in. do. (52 yds. to 1 ton) ... ... ,,		9	9½
2½ in. do. (45 yds. to 1 ton) ... ... ,,		11	3
3 in. do. (39 yds. to 1 ton) ... ... ,,		12	7½
Quantities under 1 ton add 1d. per ½ in. of thickness.			
½ in. imported insulation Board, quantities over 5,000 sq. ft. per 100 sq. ft.	2	2	6
¼ in. Hardboard do. ... ... ,,	2	1	6
⅜ in. do. do. ... ... ,,	3	2	6
5/16 in. Asbestos Flat Building Sheets ... ... per yd. sup.		4	3
¼ in. do. ... ... ,,		5	9½
Roofing Felt 1-ply ... ... ,,		1	9
do. 2-ply ... ... ,,		2	2½
Best Scotch Glue in slabs ... ... per ½ cwt.	5	0	0
do. pearl ... ... ,,	5	5	0
Croid Glue ... ... 28 lb.	2	6	0
Cut Nails 3 in. (1-ton. lots) ... ... per ton	73	0	0
do. 4 in. and up (1-ton lots) ... ... ,,	69	10	0
Wire Nails 3 in. (4-cwt. lots) ... ... per cwt.	3	13	11
do. 4 in. and up (4-cwt. lots) ... ... ,,	3	13	3

METALS

STEEL JOISTS, ETC.

Basis Joists—			
6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in., 12 in. × 6 in. plain cut to lengths delivered London area ... ... per ton	51	2	6
Extra for sizes			
3 in. × 1½ in. 4 in. × 1¾ in. ... ... ,,	3	10	0
3 in. × 3 in. ... ... ,,	2	10	0
4 in. × 3 in. ... ... ,,	2	5	0
10 in. × 4½ in. ... ... ,,	1	10	0
5 in. × 2½ in. 5 in. × 3 in. ... ... ,,	1	15	0
4¾ in. × 1¾ in. ... ... ,,	3	5	0
5 in. × 4½ in. 7 in. × 3½ in. 13 in. × 5 in. ,,		15	0
6 in. × 3 in. 24 in. × 7½ in. ... ... ,,	2	0	0
6 in. × 4½ in. 7 in. × 4 in. 8 in. × 4 in. } 9 in. × 4 in. 10 in. × 5 in. ... ... } ,,	1	5	0
12 in. × 5 in. 22 in. × 7 in. ... ... ,,	1	0	0
9 in. × 7 in. 10 in. × 8 in. 12 in. × 8 in. 14 in. × 5½ in. 14 in. × 6 in. 14 in. × 8 in. 15 in. × 5 in. 15 in. × 6 in. 16 in. × 6 in. 16 in. × 8 in. 18 in. × 8 in. 18 in. × 7 in. 20 in. × 6½ in. 20 in. × 7½ in. ,,		10	0
Steel angles average price ... ... ,,	53	2	6
Steel tees average price ... ... ,,	54	2	6
Fabricated work delivered London—			
R.S. Joists cut and fitted ... ... ,,	70	12	6
Compound girders ... ... ,,	77	0	0
Stanchions ... ... ,,	82	10	0
Compound stanchions ... ... ,,	87	0	0
In Roof Work—Trusses and Purlins ... ... ,,	100	12	6
Average prices not for awkward work.			
Angle cleats and ⅝ in., ¾ in. and ⅞ in. bolts average price London area ... ... per cwt.	5	19	0

FERRO-CONCRETE BARS

Mild Steel Ferro-Concrete bars British manufacture to BSS785 ex London Stock ⅝ in. diam., and upwards ... ... per ton	49	17	6
¼ in. diam. ... ... ,, extra	8	12	6
5/16 in. do. ... ... ,,	6	12	6
⅜ in. do. ... ... ,,	4	12	6
½ in. do. ... ... ,,	3	2	6

MILD STEEL TUBES

Tubes to BSS1387 and Fittings. List prices and following discounts :

Galvanised Tube—	Under 1 ton	Over 1 ton	W.I. Fittings	Malleable Fittings
Class A	+24¼%	+21½%	Light +48 %	Malleable List
Class B	+37½%	+34½%	Heavy +55½%	−20½%+40%
Class C	+57½%	+54½%		
Black—				
Class A	+ 4½%	+ 1¼%	Light +35½%	Malleable List
Class B	+18¼%	+15 %	Heavy +43¼%	− 20½%
Class C	+34½%	+31½%		

C.I. HALF-ROUND GUTTERS

Delivered London per yd. in 6-ft. lengths

	Gutters	Nozzles	Stop Ends
3 in.	4 0½	3/7	1/–
3½ in.	4/4½	3/11	1/–
4 in.	5/8	4/5	1/7
4½ in.	6/3	4/11	1/10
5 in.	6/11½	5/4	2/2

METALS—*continued*

C.I.O.G. Gutters

	Gutters	Nozzle	Stop Ends
3 in.	5/2½	4/8	1/3
3½ in.	5/10	4/8	1/7
4 in.	6/5	4/11	1/10
4½ in.	6/11½	5/8	2/2
5 in.	7/7½	6/5	2/6

C.I. Rain-water Pipes

Per yd. in 6-ft. lengths	Pipe	Bends	Branches
2 in.	8/7½	4/5	6/4
2½ in.	8/7½	4/11	8/6
3 in.	9/8½	6/2	9/2
3½ in.	11/0½	7/3	11/–
4 in.	12/9	8/9	13/1

L.C.C. Coated Soil Pipes

2 in.	9/8½	7/7	9/2
2½ in.	10/4	8/5	11/5
3 in.	11/7	9/2	13/7
3½ in.	12/11½	11/5	15/10
4 in.	14/9	12/9	18/8

Above prices for gutters, rain-water and soil pipes for under 5 cwt. lots only. Lots over 5 cwt. see List No. 3300 dated February 1, 1955, plus 22½% and tonnage allowance. 4-ton lots 5 per cent., 2-ton lots 2½ per cent.

L.C.C. Coated Drain Pipes

In 9-fts.

	cwt.	qt.	lb.	per yd.	Bends	Branches
4 in.	1	1	17	33/6	23/3	41/3
6 in.	2	0	1	49/2	62/–	99/–

Asbestos Rain-water Pipes and Fittings

All less 17½ per cent. discount.

		2 in.	2½ in.	3 in.	4 in.
Pipes 6-ft. lengths	per yd.	4/3	4/6½	5/6	7/3½
Shoes	each	2/9	3/–	3/7	4/10
Single Branches	,,	4/4	5/1	6/1	8/6
Bends square or obtuse	,,	3/–	3/4	4/4	6/1
Swan Necks 4½ in. proj.	,,	3/4	4/4	4/10	6/9
,, 6 in. ,,	,,	3/7	4/4	5/5	7/3

Asbestos O.G. Gutters and Fittings

		4 in.	4½ in.	5 in.	6 in.
Gutters 6 ft. lengths	per yd.	4/1	4/5½	5/4	6/4½
Drop ends	each	3/3	3/9	4/5	5/2
Stop ends	,,	1/–	1/1	1/2	1/4
Angles	,,	3/4	3/10	4/8	5/5
Nozzles	,,	3/3	3/9	4/5	5/2
Union Clips	,,	1/7	1/11	2/4	2/8

Asbestos Half-Round Gutters and Fittings

		3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters 6 ft. lengths...	per yd.	2/10	3/4½	3/5½	4/1	5/8
Drop ends	each	2/4	2/9	3/–	3/4	4/10
Stop ends	,,	–/11	1/–	1/1	1/2	1/4
Angles	,,	2/8	3/–	3/4	3/7	4/10
Nozzles	,,	2/4	2/9	3/–	3/4	4/10
Union Clips	,,	1/2	1/3	1/4	1/6	2/3

	Per ton basis in London £ s. d.
Iron—Staffordshire Crown Merchant Quality	49 7 6
Mild Steel Bars	47 12 6
Mild Steel Hoops	44 2 6

	Ex Merchant's Stock per ton Two-ton lots £ s. d.
Soft Sheets C.R. and C.A.—	
20 gauge	62 14 6
24 gauge	65 4 6
26 gauge	68 4 6
Galvanised Corrugated sheets 6 ft. to 9 ft.—	
20 gauge	71 12 0
24 gauge	75 2 0
26 gauge	80 7 0
Galvanised flat sheets C.R. and C.A.—	
20 gauge	73 2 0
24 gauge	76 12 0
26 gauge	81 17 0

ALUMINIUM AND ALUMINIUM ALLOYS

(Base prices)		£ s. d.
Sheet BS 1740 S1C 18 SWG (36 in. wide)	per lb.	2 11
Sheet BS 1470 NS3 Utility 18 SWG (36 in. wide)	,,	2 8½
Coiled strip BS 1470 S1C 18 SWG (24 in. wide)	,,	2 10
Coiled strip BS 1470 NS 3 Utility 18 SWG (24 in. wide)	,,	2 8
Coiled strip for flashing 99.7% purity 22 SWG (12 in. wide)	,,	3 0½
Corrugated sheet BS 1470 NS 3 Utility Circular Profile 8 ft. × 32 in. × 20 SWG	per sheet	1 12 6
Corrugated sheet BS 1470 NS 3 Utility Industrial Profile 8 ft. × 31½ in. × 20 SWG.	,,	1 18 1
Corrugated sheet BS 1470 NS 3 Utility Mansard Profile 8 ft. × 31½ in. × 20 SWG	,,	1 11 7
Extruded section BS 1476 E1C simple moulding	per lb.	2 9
Extruded section BS 1476 E1C 1 in. diam. round	,,	2 6½
Extruded section BS 1476 HE1WP simple angle	,,	3 0
Extruded section BS 1476 HE10WP 1 in. diam. round	,,	2 11
Tubing BS 1471 T1C 1½ in. O/D × 20 SWG...	,,	4 4½
Tubing BS 1471 HT10WP 1½ in. O/D × SWG	,,	5 8

PLUMBERS' BRASS WORK, etc.

Delivered in London area.

M.O.H. All per doz.	¼ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdown bib cocks Crutch head for iron	87/–	128/8				
Toilet bib cocks for iron	109/–	158/5				
Screwdown stop cocks for iron	66/–	95/9	188/–	363/–	522/6	917/6
do. with two unions for lead	89/–	132/–	234/4	472/–	623/6	1389/6
Double nut boiler screws	18/8	26/5	47/6	48/6	67/–	93/6
Heavy Croydon ball valves	77/–	193/6	312/5	568/8	734/10	—
Plumbers' union brass lead to iron	19/6	23/6	38/6	52/10	70/6	165/-
	1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
Caps and screws	33/–	40/8	59/6	92/5	118/10	155/3
Brass sleeves		31/11	31/11	56/2	74/10	91/5
	1½×6 lb.		1½×6 lb.	2×7 lb.	3×7 lb.	
Lead P. trap with brass cleaning screws	68/6		85/6	137/–		234/-
Lead S. trap do.	83/–		102/6	168/3		302/-

Solder		s. d.
Plumbers'	1 cwt. lots	332/–
Tinmen's	,, ,,	408/–
Blow pipe	,, ,,	411/–
	14 lb. lots per lb.	3 6
	,, ,,	4 1
	,, ,,	4 3

Copper Tubes and Sheets

Copper tubes BSS 659/1944 on the basic price of 23½d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 3 cwt.

	Extra d.	Total per lb. d.	approx per ft. d.
¼ in. × 19 gauge	14¾	38	10½
¾ in. × 19 ,,	13	36½	14
1 in. × 18 ,,	11½	34½	21½
1¼ in. × 18 ,,	10½	34½	26
1½ in. × 18 ,,	10½	34½	31
2 in. × 17 ,,	12½	35½	50

Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras ... ... per ton £221 5 0

Zinc

		£ s. d.
Sheet Zinc	10 gauge (25 SWG) 5 cwt. lots upwards per cwt.	7 7 0
do.	12 gauge (23 SWG) ,, ,,	7 5 9
do.	14 gauge (21 SWG) ,, ,,	7 4 6

Brass Tubes

Brass tubes basic price, plus gauge and manufacturing extras ... ... per lb. 1 7½

LEAD SHEET AND PIPES

Basis selling price in minimum one-ton delivery to one address in London or Home Counties.

		£ s. d.
Lead Sheet, English, 3½ lb. substance and upwards	per ton	130 5 0
Lead Water Pipe in coils	,,	132 10 0
Lead Soil Pipe 10 ft. or over 2 in. to 4 in. dia.	,,	134 0 0
,, over 4 in. dia.	,,	136 0 0
Lead Gas or Untinned Compo pipe	,,	134 0 0
Extras over Basis for quantities under 1 ton		
5 cwt. and under 1 ton	per cwt.	2 0
3 cwt. do. 5 cwt.	,,	4 0
1 cwt. do. 3 cwt.	,,	6 0

Smaller quantities than 1 cwt. priced specially.

Supplying sheet lead and lead pipe to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.

Allowance for Old Lead, collected £80 15s. 0d. per ton weighed at buyer's works.

PLASTER, etc.

		£ s. d.
Coarse Pink in 1-ton loads and over Delivered on Site	per ton	8 9 6
do. White do. do.	,,	8 19 0
Siripite Coarse do. do.	,,	8 10 6
do. Fine do. do.	,,	8 18 6
Blue Lias Lime in 6-ton loads	,,	6 14 6
Hydrated Lime (Grey) do.	,,	5 17 6
do. (White) do.	,,	6 5 0
Lump Lime (Grey) do.	,,	5 7 0
do. (White) do.	,,	5 14 6
White Keen's or Parian Cement in 1-ton loads	,,	12 4 6
Pink Keen's or Parian Cement in 1-ton loads	,,	11 19 3
Granite Chips in 6-ton loads	,,	2 8 6
Hair	per cwt.	4 17 6
Gypsum Plaster Lath or Base Board ⅜ in. thick 600 yds. and over in one delivery. Delivered site	per yd.	2 5
1,200 yds.	,,	2 4
Do. Insulating do. ⅜ in. thick 600 yds. and over in one delivery. Delivered site	,,	3 0
1,200 yds.	,,	2 11½
Gypsum Plaster Wall Boards, 3 and 4 ft. wide, 6 to 12 ft., ⅜ in. thick, 600 yds. and over in one delivery Delivered site	,,	2 8
1,200 yds.	,,	2 7
Do. Insulating do. ⅜ in. thick 600 yds. and over in one delivery. Delivered site	,,	3 3
1,200 yds.	,,	3 2½

PAINT AND DISTEMPER

		£	s.	d.
Delivered London area				
Ceiling Distemper	per cwt.	1	7	6
Washable Distemper	,,	5	5	0
Gloss Paint	per gal.	2	12	0
Snowcem cement paint (in 1 cwt. drums)	per cwt.	3	11	0
LEAD PRODUCTS AND OILS				
Ground White Lead, in 1 cwt. kegs	per cwt.	8	18	3
Genuine White Lead Paint, 1-19 gal. lots in 1 gal. tins	per gal.	3	9	6
Genuine Red Lead, Dry, 1 cwt. keg.	per cwt.	6	9	6
Genuine Linseed Oil Putty, 1 cwt. keg	,,	2	14	0
Size XD quality 28 lb.	per tin		9	0
Raw Linseed Oil (5 gal.) drums extra	per gal.		18	6
Boiled Linseed Oil (5 gal.) do.	,,		19	0
SUNDRIES				
Turpentine substitute (5 gal.) drums extra	,,		5	3½
do. do. (40 gal.) do. do.	,,		4	7½
Solignum, Brown (5 gal. cans) Exterior	,,		8	4
Creosote (40 gal. barrels)	,,		2	3
Paste Powder (1 lb. packets)	per lb.		1	10
White Lining Paper	per piece		1	2½

VARNISHES, etc.

		£	s.	d.
Delivered London area				
Oak Varnish, Outside or Inside	per gal.	2	0	0
Oak Pale Copal do.	,,	2	0	0
Hard Drying Oak for Inside	,,	2	5	0
Crystal Paper Varnish do.	,,	2	8	0
Eggshell Flat Varnish do.	,,	2	6	0
Finest Carriage Varnish	,,	2	7	0
Front Door Varnish	,,	2	4	0
Japan Gold Size	,,	1	18	0
Black Japan	,,	1	16	0
Brunswick Black	,,	1	12	0
Berlin Black	,,	1	10	0
Terebene	,,	1	17	0
Knotting (1 gal. bottles free)...	,,	2	8	0
French and Brush Polish (do.)	,,	2	2	0

GLASS

	per ft. super s.	d.
Delivered London area		
18 oz. Sheet Glass Ordinary Glazing Quality-Cut Sizes		7 7/16
24 oz. ,, ,, ,, ,, ,, ,,		10 3/16
26 oz. ,, ,, ,, ,, ,, ,,	1	0¼
32 oz. ,, ,, ,, ,, ,, ,,	1	4½
⅛ in. Rolled Plate		11¼
⅛ in. Rolled and Rough Cast	1	3
¼ in. ,, ,, ,, ,, ...	1	3½

	per ft. super s.	d.
⅛ in. Figured Rolled and Cathedral Standard patterns :		
White Group 1		11½
do. Group 2	1	3⅜
do. Standard Tints	1	10
do. Special Tints	6	8
⅛ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating Group 3	1	4⅜
¼ in. Wired Cast	1	7¼
¼ in. Georgian Wired Cast...	1	7¼
Hollow Glass Blocks—		Each
P.B.2. 5¾ × 5¾ × 3⅞ in.	3	3
P.B.3 7¾ × 7¾ × 3⅞ in.	5	0
P.B.32 7¾ × 7¾ × 3⅞ in.	5	0
Radiused Corner Blocks to match up with—		
P.B.2	6	0
P.B.3	7	6
P.B.32	7	6
¼ in. Polished Plate Glass, G.G. Quality—	Per ft. super	
In plates not exceeding 2 ft. sup.	4	3
,, ,, ,, 5 ft. sup.	5	3
,, ,, ,, 45 ft. sup.	6	3
,, ,, ,, 100 ft. sup.	6	9

¼ in. Polished Plate, extra sizes, *i.e.* plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality—Not exceeding 135 ft. sup. or 250 in. one way or 135 in. both ways 10 0
Not exceeding 180 ft. sup. or ditto 13 4
Plates exceeding 180 ft. sup. prices on application.
Substances other than ¼ in. Polished Plate at Special Prices.

Quantity Tariff—Sheet and Sundry Glass.

The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass	Minimum quantity	Per ft. sup. s.	d.
18 oz. sheet O.Q.	3,000		5⅛
24 oz. ,, ,, ...	2,000		7⅞
26 oz. ,, ,, ...	2,000		9½
32 oz. ,, ,, ...	2,000	1	1½
⅛ in. Rolled Plate	1,000		8⅛
⅛ in. Figured Rolled and Cathedral Standard Patterns, White Group 1	1,000		8⅛
do. Group 2	1,000		10¼
⅛ in. Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte Group 3	1,000		11⅞
3/16 in. and ¼ in. Rolled Plate or Rough Cast ...	2,000	1	0
¼ in. Wired Cast, Hexagonal	2,000	1	2
¼ in. Georgian Wired Cast	2,000	1	2½

The Builder

CURRENT RATES OF WAGES

AS FROM MAY 27, 1957. (Every endeavour is made to ensure accuracy but we cannot be responsible for errors.)

KEY TO SCHEDULE OF GRADE RATES.

Grade Classification.	A	A1
Craftsmen	4/6	4/5½
Labourers	3/11½	3/11

Town.	*Grade.*
Aberavon	A
Aberdare	A
Abergavenny	A
Abingdon	A1
Accrington	A
Addlestone	A
Afan Valley	A
Aldeburgh	A1
Aldershot District	A1
Alfreton UD	A
Alnwick UD	A
Altrincham	A
Amble	A
Ambleside	A1
Amersham	A1
Ammanford	A
Andover	A1
Anglesey, Isle of	A1
Ardingly	A1
Arundel	A1
Ascot	A1
Ashbourne RD	A1
Ashbourne UD	A1
Ashby-de-la-Zouch UD	A
Ashby Woulds UD	A
Ashford (Kent)	A1
Ashford (Middlesex)	A
Ashington UD	A
Ashtead	A
Ashton-under-Lyne	A
Aspatria and Brayton	A1
Atherstone RD	A
Attleborough	A1
Axminster	A1
Aylesbury	A1
Aylsham	A1
Bagshot	A1
Bakewell UD	A1
Banbury	A1
Bangor	A1
Barnard Castle UD	A
Barnoldswick UD	A
Barnsley CB	A
Barnstaple	A1
Barrow-in-Furness	A
Barrow-upon-Soar RD (part Thrussington)	A1
Barry	A
Basford RD (exc. Willough-by-on-the-Wolds A1)	A
Basingstoke	A1
Bath	A
Batley MB	A
Baxterley	A1
Beaconsfield District	A
Bearl	A
Beccles	A1
Bedale RD	A
Bedford	A
Bedlington	A
Bedlingtonshire UD	A
Bedwas	A
Beeston & Stapleford UD	A
Belper UD	A
Belton	A
Berkhamsted	A
Berrington	A1
Berwick Borough	A
Beverley MB	A
Bewdley MB	A
Bexhill-on-Sea	A1
Bideford	A1
Biggleswade	A1
Billericay	A
Billing	A
Billingham UD	A
Bilsthorpe	A
Bilston MB	A
Birchington	A1
Birkenhead	*
Birmingham CB	†A
Bishop Auckland UD	A
Bishop's Stortford	A
Bishops Castle MB	A1
Bispham	A
Blackburn	A
Blackpool	A
Blackwell RD	A
Blandford	A1
Blaydon UD	A
Blidworth	A
Blyth B.	A
Bodmin	A1
Bognor Regis	A1
Boldon UD	A
Bolsover UD	A
Bolton	A
Boston MB	A
Bourne End	A
Bournemouth District	A
Brackley MB	A1
Bracknell	A1
Bradford CB	A
Bradford-on-Avon	A1
Braintree	A1
Brandon & Byshottles UD	A
Brecon—Borough of	A1
Breconshire, County of	‡A1
Brent Knoll	A1
Brentwood	A
Bridgend	A
Bridlington MB	A
Bridlington RD	A1
Bridgnorth MB	A1
Bridgnorth RD	A1
Bridgwater	A1
Brierfield	A
Brighouse MB	A
Brighton & Hove	A
Bristol District	A
Broadstairs	A1
Bromsgrove UD	A
Broughton, Flint	A
Buckfastleigh	A1
Buckingham	A1
Buckley	A
Bungay	A1
Burnham-on-Crouch	A1
Burnham-on-Sea	A1
Burnley	A
Burton-on-Trent C.B.	A
Bury	A
Bury St. Edmunds	A1
Buxton	A
Byfleet	A1
Caernarvon	A1
Caernarvonshire, Cnty. of	‡A1
Calder Valley	A
Camberley District	A1
Cambridge	A
Cannock UD	A
Canterbury	A1
Cardiff	A
Cardiganshire, County of	‡A1
Carlisle	A

CURRENT RATES OF WAGES—Continued

Town.	Grade.
Carlton UD	A
Carmarthen—Borough of	A1
Carmarthenshire,Cnty of ‡	A1
Carnforth	A
Castleford UD	A
Caterham	A
Chapel-en-le-Frith	A
Chard	A1
Charmy Down	A
Chatham District	A
Chatteris	A1
Cheadle (Staffs) RD	A
Chelmsford	A
Cheltenham	A
Chepstow	A
Chertsey	A
Chester	A
Chester-le-Street UD	A
Chesterfield MB	A
Chesterfield RD	A
Chichester	A1
Chipping Norton	A1
Chipping Sodbury	A1
Chippenham (inc. Chippenham Within and Hardenhuish)	A1
Chorley	A
Cirencester	A1
Clacton	A1
Clay Cross UD	A
Cleethorpes MB	A
Clevedon	A1
Cleveleys	A
Clitheroe	A
Coalville UD	A
Cobham (Surrey)	A
Colchester	A
Colne	A
Colwyn Bay	A1
Congleton	A1
Consett UD	A
Conway	A1
Corby UD	A
Cornwall, County of	‡A1
Corsham District	A
Coventry CB	A
Cranbrook	A1
Cranleigh	A1
Cranwell Aerodrome Site	A
Crawley	A1
Crewe	A
Crewkerne	A1
Cromer	A1
Crook and Willington UD	A
Crowborough	A1
Cuckfield	A1
Cwmbran	A
Dalton-in-Furness	A
Darlington CB	A
Dartmouth	A1
Darwen	A
Daventry MB	A1
Deal	A1
Denbigh Town	A1
Derby CB	A
Devizes	A1
Devon, County of	‡A1
Dewsbury CB	A
Didcot	A1
Diss	A1
Doncaster CB	A
Dorchester	A1
Dorking	A
Dorset, County of	A1
Dover	A1
Dovercourt	A
Driffield UD	A1
Drigg & Carleton	A
Droitwich MB	A
Dudley CB	A
Dunstable	A
Durham B	A
Eastbourne	A
E. Glam. & Mon. Val	A
East Grinstead District	A1
East Kesteven RD	A1
East Retford MB	A
Eastwood (Notts) UD	A
Ebbw Vale & District	A
Edenbridge	A1
Ely	A1
Epping	A
Evesham MB	A1
Exeter	A
Exmouth	A1
Fakenham	A1
Falmouth	A1
Fareham	A
Faversham	A1
Felixstowe	A1
Filey UD	A
Fleetwood	A
Flint MB	A
Folkestone	A1
Frinton	A1
Frome	A1
Gainsborough UD	A
Gateshead CB	A
Gillingham (Dorset)	A1
Gillingham (Kent)	A
Glastonbury & Street	A1
Glossop	A
Gloucester	A
Gloucestershire, Cnty. of ‡	A1
Godalming	A1
Goole, MB	A
Goole RD (part—Airmyn, Hook)	A
Gosport	A
Grantham MB	A
Gravesend	A
Grays Thurrock UD Area	A
Great Yarmouth	A
Grimsby CB	A
Grimsby RD (part)	A1
Guildford District	A1
Halesowen MB	A
Halifax CB	A
Halstead	A1
Haresfield	A1
Harlow	A
Harpenden	A
Harrogate MB	A
Hartlepool B	A
Harwell	A1
Harwich	A
Haslemere	A1
Hastings	A1
Hatfield (Herts)	A
Havant	A
Haywards Heath	A1
Heanor UD	A
Hemel Hempstead	A
Henley-on-Thames	A1
Hereford	A1
Herefordshire, Cnty. of	‡A1
Herne Bay	A1
Hertford	A
Hexham RD	A
Hexham UD	A
Heysham	A
Heywood	A
Higham Ferrers MB	A
High Wycombe	A
Hinckley UD	A
Hitchin	A
Hoddesdon	A
Holywell	A
Horley	A1
Horncastle UD	A1
Horsham	A1
Horwich	A
Huddersfield CB	A
Hull	A
Hunstanton	A1
Huntington (Staffs)	A
Ilfracombe	A1
Ilkeston MB	A
Ilkley UD	A
Ipswich	A
Isle of Sheppey	A1
Isle of Thanet	A1
Isle of Wight	A1
Jarrow B	A
Keighley MB	A
Kendal	A
Kenilworth UD	A
Kettering MB	A
Keynsham	A
Kidderminster MB	A
Kingskerswell	A1
King's Lynn	A1
Kingsteignton	A1
Kirkham	A
Knaresborough UD	A
Knutsford	A
Lancaster	A
Leamington MB	A
Leatherhead	A
Leeds CB	A
Leek UD	A
Leicester CB	A
Leighton Buzzard	A1
Leiston	A1
Leominster	A1
Letchworth	A
Lewes	A1
Lichfield MB	A
Lincoln CB	A
Liskeard	A1
Littlehampton	A1
Liverpool	*
Llandudno	A1
Llanelly (incl. Llanelly RD)	A
Llanfairfechan	A1
Llangollen	A1
London	*
Long Eaton	A
Looe	A1
Loughborough MB	A
Louth MB	A1
Lowestoft	A
Loxton	A1
Ludlow MB	A1
Ludlow RD	A1
Luton	A
Lyme Regis	A1
Lyneham (Devon)	A1
Lytham	A
Macclesfield	A
Maidenhead	A
Maidstone	A
Maldon (Essex)	A1
Maltby UD	A
Malton UD	A1
Malvern UD	A1
Manchester	A
Manningtree	A1
Mansfield MB	A
March	A1
Margate	A1
Market Harborough RD	A1
Market Harborough UD	A
Market Rasen UD	A1
Martock	A1
Maryport	A
Matlock UD	A
Melksham	A1
Melton Mowbray UD	A1
Merionethshire	A1
Merthyr	A
Mexborough UD	A
Middlesbrough CB	A
Middleton	A
Middlewich	A
Mildenhall	A1
Milford Haven UD	A1
Minehead	A1
Monmouth—Borough of	A1
Monmouthshire	A1
Morecambe	A
Moreton Valence	A1
Morley	A
Morpeth B	A
Morpeth RD	A
Mundesley	A1
Nantwich	A
Neath & Valley	A
Nelson	A
Newark MB	A
Newbury	A1
Newcastle-on-Tyne CB	A
Newcastle-under-Lyme	A
New Forest District	A1
Newmarket	A1
Newport, Mon.	A
Newport Pagnell	A1
Newquay	A1
Newton Abbot	A1
Normanton UD	A
Northallerton District	A
Northallerton UD	A
Northampton CB	A
North Shields	A
North Walsham	A1
Northwich	A
Norton Radstock	A1
Norwich	A
Nottingham CB	A
Nuneaton MB	A
Oakham RD	A1
Oakham UD	A1
Okehampton	A1
Oldham	A
Ongar	A
Ormskirk	A
Ossett & Horbury	A
Oswestry	A1
Oundle UD	A1
Oxford	A
Oxted	A1
Padstow	A1
Paignton	A1
Par	A1
Pembrokeshire (except Milford Haven)	A1
Penmaenmawr	A1
Penrith UD	A1
Penzance	A1
Peterborough, Soke of (Eastern Regional portion)	A1
Petersfield	A1
Pickering	A1
Plymouth	A
Pontefract MB	A
Pontypool & District	A
Pontypridd District	A
Porthcawl	A
Portishead	A
Portland Bill	A1
Portsmouth	A
Port Talbot	A
Preston	A
Princetown	A1
Pudsey MB	A
Pulborough	A1
Radnorshire, County of	‡A1
Ramsgate	A1
Raunds UD	A
Rayleigh	A
Reading	A
Redcar B	A
Redditch UD	A
Redhill & Reigate	A
Rhondda Valley	A
Richmond B (Yorks)	A
Ripon MB	A1
Rochdale	A
Rochester	A
Ross-on-Wye	A1
Rossendale Valley	A
Rotherham CB	A
Royston	A1
Rugby MB	A
Rugeley UD	A1
Rushden UD	A
Saffron Walden	A1
St. Albans	A
St. Austell	A1
St. Helens	A
St. Neots	A1
Salisbury City	A1
Salisbury Plain	A1
Sandy	A
Sawbridgeworth	A
Saxmundham	A1
Scarborough MB	A
Scunthorpe MB	A
Seaford & Newhaven	A1
Selby UD	A
Sevenoaks	A
Shaftesbury	A1
Sheerness	A1
Sheffield MB	A
Shepton Mallet	A1
Sherborne	A1
Shipley	A
Shoeburyness	A
Shoreham	A
Shrewsbury MB	A
Sirhowy Valleys	A
Sittingbourne	A1
Skegness UD	A1
Skipton UD	A
Sleaford UD	A1
Slough, Windsor & Eton District	A
Smethwick CB	†A
Snettisham	A1
Solihull UD	A
Somerset, County of	‡A1
Southampton and Eastleigh	A
Southend-on-Sea Dist.	A
Southport	A
South Shields CB	A
Southwold	A1
Spalding UD	A1
Stafford MB	A
Staines	A
Stamford MB	A1
Stantonwick	A
Stevenage	A
Stockport	A
Stockton RD	A
Stockton-on-Tees B	A
Stoke-on-Trent CB	A
Stoke Orchard	A1
Stourbridge MB	A
Stourport UD	A
Stowmarket	A1
Stratford-on-Avon MB	A
Stroud (RD Area)	A1
Sunderland CB	A
Sunningdale	A1
Sutton Coldfield MB	A
Swadlincote UD	A
Swaffham	A1
Swanage District	A1
Swansea	A
Swindon District	A
Swinton UD	A
Tamworth MB	A
Taunton	A1
Tavistock	A1
Tenterden	A1
Teignmouth	A1
Tewkesbury	A1
Thames Haven	A
Thetford	A1
Thirsk RD	A
Thorpe Bay	A
Thurrock UDC Area	A
,, North of to Billericay	A
Tilbury	A
Todmorden MB	A
Tonbridge	A1
Torquay	A1
Totnes	A1
Tring	A1
Trowbridge	A1
Truro	A1
Tunbridge Wells	A1
Tynemouth CB	A
Ulverston	A
Uppingham (Salop)	A1
Uttoxeter RD	A1
Uttoxeter UD	A1
Wakefield CB	A
Wakefield RD	A
Walsall CB	A
Wallsend B	A
Walsden	A
Walton-on-Naze	A1
Ware	A
Warminster	A1
Warrington	A
Warwick MB	A
Wednesbury MB	A
Wellingborough UD	A
Wellington UD	A
Wellington (Somerset)	A1
Wells (Norfolk)	A1
Wells (Somerset)	A1
Welwyn	A
Welwyn Gar. City	A
West Bromwich CB	A
Westbury	A1
Westcliff-on-Sea	A
Westerham	A1
West Hartlepool CB	A
Westmorland (except Kendal)	A1
Weston-super-Mare	A1
Weybridge	A
Weymouth (including Portland Bill, excluding Portland Stoneyards)	A1
Whitby UD	A1
Whitby RD	A1
Whitehaven	A
Whitley & Monkseaton UD	A
Whitstable and District	A1
Wickford	A
Widnes	A
Wigan	A
Wigton	A1
Wilmslow	A
Wilts. County of	‡A1
Wimborne	A1
Wincanton	A1
Winchester	A1
Windermere	A1
Wisbech	A1
Witham	A1
Withernsea UD	A1
Woking	A1
Wokingham	A1
Wolverhampton CB	A
Wolverton District	A1
Woodbridge	A1
Woodnall Spa UD	A1
Woodstock	A1
Worcester CB	A
Workington	A
Worksop MB	A
Worthing	A1
Wrexham (incl. Cefn)	A
Wroughton	A1
Wylam	A
Wymondham	A1
Yate	A1
Yeovil Borough	A1
York CB	A
Ystalyfera	A

*For Birkenhead, Liverpool and London the rates are:—Craftsmen, 4s. 7½d.; Labourers, 4s. 1d. In the case of London the rate beyond the 12-mile radius is: Craftsmen, 4s. 7d.; Labourers, 4s. 0½d. †Plus 2d. per working day. ‡This is the County rate and applies except where higher grades are stated.

NOTE.—Carpenters and Joiners providing own tools when employed in establishments operating under the Supplementary Rules for Woodworking Factories and Shops, receive 2d. per day; when employed on other building industry work, 4d. per day.

WOMEN'S RATES.—In all districts throughout the country the rate of wages for women engaged in craft processes is 3s. 7½d. per hour. Women engaged on work other than craft processes, 3s. 3½d. per hour.

For Building Trade Wages in Scotland see page 480

The Builder Review of PLANT & MATERIALS

Heated Asphalt Tipper

FOR the transportation of asphalt and other tarmacadam materials from the manufacturer's plant to the contractor's site, Tarslag, Ltd., of Wolverhampton, recently placed in service a Dodge 5-ton diesel-powered short wheelbase model mounted with a heat insulated tipper body equipped with a patented heater unit. This utilises the engine exhaust gases and enables temperatures of up to 300 deg. Fahrenheit to be maintained under full load. Prolonged testing has shown that even on journeys exceeding 200 miles there is no evidence of solidifying. The delivery range of such materials is therefore considerably increased.

Polythene Syphon

The latest production of Hawkhead, Bray & Son, Ltd., Phoebe Lane Mills, Halifax, is a reinforced polythene syphon for flushing cisterns. This syphon, which is being fitted as standard to the 'Hawk' range of flushing cisterns, has been produced, it is claimed, as the complete answer to the problem which arises when the water has a corrosive action on existing types. When specified for use with 1¼ in. flushpipes the outlet will take all types of 1¼ in. pipes including galvanised, plastic and those made for use with well-bottomed cisterns.

'Family' Refrigerator

The new Electrolux model L24 is one of the 1958 range by Electrolux, Ltd., 153-5, Regent-st., London, W1. It has a shelf area of 5 sq. ft. and is operated by electricity. Dimensions are: Height 3 ft. 0¼ in.; width 1 ft. 9¾ in.; and depth, 1 ft. 11¾ in.

Cranes for Hungary

Chamberlain Industries, Ltd., manufacturers of the 'Staffa' range of mobile and shop cranes, announce that they have received their first order from an Iron Curtain country for their popular 'Staffa 2' 2-ton capacity hydraulic shop crane. The crane has been purchased by a trading company serving heavy industry in Hungary.

SCAFFOLD PROP. — A Trade Fair recently held at Rouen included a number of building trade specialities. The scaffold prop shown has been patented by Ets Bron and Gladel of 1, Rued'Urfe, St. Etienne (Loire), France, and its working is shown in the photograph, a metal link engaging in a ratchet

TRADE NEWS

Oil-fired Heating Exhibition

AN exhibition covering a wide range of oil-burning appliances for domestic central heating is to be presented in Liverpool by Shell-Mex and B.P., Ltd. It will be held at the Pall Mall showrooms of Rowe Bros. & Co., Ltd., from September 24 to October 5.

Fibre Pipes Demand

In order to meet continued heavy demand for their pitch fibre drain pipes and cable conduit, Union Fibre Pipes (Great Britain), Ltd., one of the U.A.M. Group, have installed additional plant at their Harefield, Middlesex, factory which will double output.

House by Air

A 'Kingstrand' aluminium house has been sent by air to Iran packed in one case weighing only 750 lb. Manufactured by Coseley Engineering Co., Ltd., Lanesfield, Wolverhampton, only 13 days elapsed from the receipt of the order and the despatch of the completed house.

APLE Conference

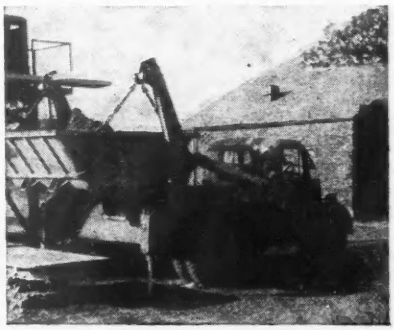
A comprehensive range of lamps and lighting equipment of interest to the public lighting engineer will be shown by Philips Electrical, Ltd., Century House, Shaftesbury-avenue, London, WC2, at the A.P.L.E. Conference, Torquay, September 17-20.

Distribution Control Panels

Single units or complete control panels for off-peak load thermal storage space heating are described in a leaflet issued by British Klockner Switchgear, Ltd., of Chertsey, Surrey. These panels are suitable for

controlling loads up to 12 kW, single phase, and consist of four-way or six-way re-wireable fuses with neutral and earthing bar, double pole 60-amp. capacity isolator, single pole 60-amp. capacity air-break contactor fitted with silver contacts, complete with control fuse. A socket is also provided to accept a 'Venner' time switch. The housing is steel finished in cream enamel.

FRENCH EQUIPMENT.—The range of hydraulic materials-handling equipment manufactured by Bennes-Marrel, of St. Etienne, France, is available from the sole concessionaires, Aero Maintenance Equipment, Ltd., 100a, Clapham Park-rd., London, SW4. The principal characteristic of these machines is that the body is completely divorced from the chassis, which has hydraulic equipment for lifting it on and off. Therefore, apart from the many different bodies available for various kinds of job, specials can be supplied which need only be used as required, the chassis remaining constantly in use in other roles. The machines are controlled by a crew of one. The handling system can be installed on existing vehicles. The pictures show, left to right, a concrete skip in the tipping position; the skip in the carrying position; and the skip being on-loaded full of concrete



NEW COMPANIES

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

Drummond (Builders), Ltd. (586573.) Regd. July 1. 12, Bruton-st., W1. Nom. cap.: £100. Dir.: F. H. Sainsbury.

Firsby Construction Co., Ltd. (586595.) Regd. July 2. Firsby Grange, Spilsby, Lincs. Bldrs. Nom. cap.: £1,000. Permt. dir.: J. F. Smith.

Drustead Building Co., Ltd. (586660.) Regd. July 3. Nom. cap.: £100. Sub.: K. R. Jones, 8, Sutherland-av., Cuffley, Herts.

Fleet Builders, Ltd. (586662.) Regd. July 3. Victoria-bldgs., 53, Butts-rd., Thornton, Blackpool. Nom. cap.: £6,000. Dir.: W. Leigh.

F. W. Sutton & Co. (586663.) Regd. July 3. 1, Woodside-rd., Sidcup, Kent. Bldrs., etc. Nom. cap.: £10,000. Dir.: P. M. Morgan.

Hodgson (Wickford), Ltd. (586665.) Regd. July 3. Elder-av., Nevendon-rd., Wickford, Essex. Bldrs., etc. Nom. cap.: £100. Dir.: F. Hodgson.

R. D. & W. F. Enever, Ltd. (586774.) Regd. July 5. 40, Highfield-way, Rickmansworth, Herts. Bldrs. and contrs. Nom. cap.: £1,000. Dir.: W. F. Enever.

Bimar Development Co., Ltd. (586781.) Regd. July 5. 76, Kingsland High-st., E8. Nom. cap.: £200. Dir.: V. H. Bishop.

James Bros. (Hammersmith), Ltd. (586789.) Regd. July 5. 101, Hammersmith-gro., W6. Bldrs. Nom. cap.: £500. Dir.: E. T. James.

F. Shepley (Builders), Ltd. (587169.) Regd. July 12. 53, Ashton, Hyde, Ches. Bldr., contr. Nom. cap.: £100. Dir.: F. Shepley.

Carmel Construction Co., Ltd. (587277.) Regd. July 15. 522, Brunshaw-rd., Burnley. Civil engrs. Nom. cap.: £3,000. Dir.: Mrs. B. Egan.

Oldham Construction Co., Ltd. (587297.) Regd. July 15. 145, Ward-st., Hulme, Manchester. Civil engrs. Nom. cap.: £1,000. Dir.: P. Naughton.

Smith Bros. (Crich), Ltd. (587337.) Regd. July 16. Roes-la., Crich, Derbys. Bldrs. Nom. cap.: £5,000. Dir.: D. Sellors.

Exe Valley Construction, Ltd. (587364.) Regd. July 16. 5, Goldsmith-st., Exeter. Bldrs. Nom. cap.: £500. Dir.: A. S. Kemp.

Newland & Sons, Ltd. (587369.) Regd. July 16. 37-39, High Holborn, WC1. Bldrs., etc. Nom. cap.: £1,000. Dir.: H. Newland.

T. & A. Coates, Ltd. (587371.) Regd. July 16. 8, Regent-rd., Gosforth, Newcastle-on-Tyne, 3. Bldg. contrs. Nom. cap.: £2,500. Permt. dir.: T. Coates.

D. P. David, Ltd. (587391.) Regd. July 17. 13, Adare-st., Bridgend, Glam. Bldrs. Nom. cap.: £1,000. Dir.: D. P. David.

G. H. Taylor & Son, Ltd. (587469.) Regd. July 18. 10, Bridge-st., Christchurch, Hants. Bldrs. Nom. cap.: £100. Dir.: G. H. Taylor.

Gordon Upton, Ltd. (587470.) Regd. July 18. 313, Two Mile Hill, Kingswood, Bristol. Bldrs. Nom. cap.: £3,000. Permt. dir.: Mrs. H. E. Cooke.

R. M. Wilson (Builders), Ltd. (587495.) Regd. July 18. 8, Queens-rd., Coventry. Nom. cap.: £5,000. Dir.: R. M. Wilson.

Wheeler & White, Ltd. (587509.) Regd. July 18. George-st., Chambers, Staines, Middx. Bldrs., contrs. Nom. cap.: £1,000. Dir.: D. I. Wheeler.

Hanwal Builders, Ltd. (587533.) Regd. July 18. Nom. cap.: £1,000. Dir.: S. Hanham, 294, Blackpool Old-rd., Poulton-le-Fylde.

M. J. Partridge, Ltd. (587536.) Regd. July 18. Bldg. contrs. Nom. cap.: £20,000. Dir.: M. J. Partridge, Greywalls, Birdlip, Glos.

D. W. Cove, Ltd. (587547.) Regd. July 19. 17, Dunstable-rd., Luton, Beds. Nom. cap.: £1,000. Bldrs. and contrs. Dir.: D. W. Cove.

A. J. Timmins & Son, Ltd. (586842.) Regd. July 8. 4, Attwood-st., Halesowen, Birmingham. Bldrs., contrs. Nom. cap.: £3,000. Dir.: A. E. J. Timmins.

Hunthill Building Co., Ltd. (586848.) Regd. July 8. 33, Waterloo-st., Hove, 2. Nom. cap.: £500. Dir.: J. Howard.

W. J. Baker (Building Contractors), Ltd. (586919.) Regd. July 9. 18, Hatter-st., Bury St. Edmunds. Bldg. contr. Nom. cap.: £5,000. Dir.: W. J. Baker.

Cunningham Construction Co., Ltd. (586926.) Regd. July 9. 37, Rookwood-av., New Malden, Surrey. Bldrs. Nom. cap.: £100. Dir.: A. Cunningham.

Terrescarch, Ltd. (586950.) Regd. July 9. Bldg. and civ. eng. consultants. Nom. cap.: £1,000. Sub.: M. J. Fenton, 10, St. George-st., W1 (solr.).

Tippin Bros. (Aintree), Ltd. (586951.) Regd. July 9. 140, The Albany, Old Hall-st., Liverpool, 3. Bldrs., etc. Nom. cap.: £2,000. Gov. dir.: D. C. Tippin.

J. & A. Oliver (Contractors), Ltd. (586973.) Regd. July 9. 91, North Seaton-rd., Ashington. Bldrs. and contrs. Nom. cap.: £1,000. Dir.: J. H. Oliver.

Fylde Builders & Civil Engineers, Ltd. (586980.) Regd. July 9. Basondene, Sharoe Mount-av., Fulwood, nr. Preston. Nom. cap.: £2,000. Dir.: B. Dearden.

Green & Richards, Ltd. (586992.) Regd. July 9. 47, Holmbush, St. Austell, Cornwall. Bldrs. Nom. cap.: £200. Dir.: J. D. Green.

Isis Contractors, Ltd. (587006.) Regd. July 10. Warnford-ct., Throgmorton-st., EC2. Bldrs. Nom. cap.: £100. Dir.: A. E. Poultney.

Fraser Bros., Ltd. (587060.) Regd. July 10. Bldrs., contrs. Nom. cap.: £1,000. Dir. and ch.: J. F. Royce, 12, Faversham-rd., Beckenham, Kent.

G. Hazell, Ltd. (587090.) Regd. July 11. 244, Oxford-rd., Calne, Wilts. Bldrs. Nom. cap.: £2,500. Dir.: G. L. Hazell.

W. Balshaw, Ltd. (587072.) Regd. July 10. 26, & 28, Sandy-rd., Seaforth, Lancs. Bldrs. Nom. cap.: £6,000. Dir.: W. Balshaw.

Michael Knight Contructions Co., Ltd. (587148.) Regd. July 11. East Ferring-hse., Sea-la., Ferring by Sea, Sussex. Public works contrs., bldrs. Nom. cap.: £1,000. Permt. dir.: A. Rawlinson.

Absonforts Developments, Ltd. (587081.) Regd. July 11. 156, Strand, WC2. Nom. cap.: £100. Sub.: Jean Herbert.

Henderson

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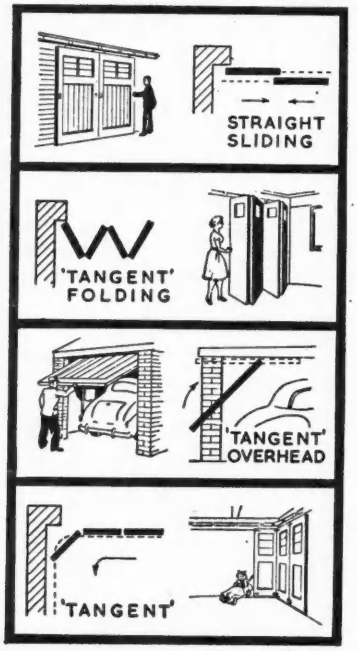

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The following companies were registered on same date, with particulars similar to Absonforts Developments:—

Fundfarms Developments, Ltd. (587089.)
Ibagran Developments, Ltd. (587096.)
Newtonvil Developments, Ltd. (587104.)
Pecradil Developments, Ltd. (587105.)
Harthyde Property Co., Ltd. (587093.)
Naglifort Property Co., Ltd. (587100.)
Perthpoint Property Co., Ltd. (587107.)
Railpon Property Co., Ltd. (587108.)
Ladgrim Investments, Ltd. (587099.)
Suchev Investments, Ltd. (587110.)

T. H. Eastick (Bournemouth), Ltd. (587226.) Regd. July 12. Fountain-pl., Boston, Lincs. Bldrs. Nom. cap.: £100. Dir.: C. D. Allison.

James Lonsdale & Sons, Ltd. (587143.) Regd. July 11. Bldrs., contrs. Nom. cap.: £1,000. Permt. dir.: J. Lonsdale.

P. Reddington, Ltd. (587149.) Regd. July 11. Troutbeck, Ifield-rd., Crawley, Sussex. Bldrs. Nom. cap.: £1,000. Dir.: P. Reddington.

A. J. Etherden (Builders), Ltd. (587610.) Regd. July 19. 8, Shortcrofts-rd., Dagenham. Nom. cap.: £100. Dir.: A. J. Etherden.

L. W. Evans (Builders), Ltd. (587630.) Regd. July 22. Nom. cap.: £100. Sub.: E. N. Marsham, 7/8, Priestgate, Darlington (solrs.).

Frank Jones & Co. (Bristol), Ltd. (587654.) Regd. July 22. 2, Neville-rd., Kingswood, Bristol. Bldrs. and contrs. Nom. cap.: £1,000. Dir.: F. Jones.

R. C. Edwards (Builders), Ltd. (587667.) Regd. July 22. 113, Manor-way, Cardiff. Nom. cap.: £2,000. Dir.: R. C. Edwards.

Carey (Development), Ltd. (587753.) Regd. July 23. Glebe-hse., North-st., Wareham, Dorset. Nom. cap.: £100. Dir.: J. Baggs.

F. C. White & Son (Fulham), Ltd. (587781.) Regd. July 24. Bldrs. Nom. cap.: £1,000. Dir.: F. C. White, 48, Gilstead-rd., SW6.

Butler Buildings, Ltd. (587804.) Regd. July 24. 4, Silverdale-rd., Oxton, Birkenhead. Nom. cap.: £100. Bldrs. and contrs. Dir.: Mrs. I. M. J. Phillips.

M. Bonner Builders, Ltd. (587813.) Regd. July 24. 100, Psalter-la., Sheffield. Nom. cap.: £1,000. Dir. M. Bonner.

Edreen Development Co., Ltd. (587841.) Regd. July 25. Edreen Cottage, Worthing-rd., Horsham, Sussex. Nom. cap.: £100. Dir.: E. P. J. Scanlan.

Milnes Bros. & Co., Ltd. (587855.) Regd. July 25. 101, Hatton-gdn., Holborn, EC1. Bldrs. Nom. cap.: £500. Dir.: H. Milnes.

Ryder & Carvell, Ltd. (587862.) Regd. July 25. 18a, Applegate-st., Leicester. Bldrs. Nom. cap.: £2,000. Dir.: L. Ryder.

Ingram Construction, Ltd. (587887.) Regd. July 25. Prudential-chmbrs., Colmore-row, Birmingham, 3. Civ. engrs., bldrs., etc. Nom. cap.: £25,000. Dir.: W. V. Smith.

B. & G. W. Lindley (Builders), Ltd. (587921.) Regd. July 26. Commercial-st., Morley, Yorks. Nom. cap.: £1,000. Dir.: G. W. Lindley.

Maurice C. Clark, Ltd. (587938.) Regd. July 26. 87, Oxhill-rd., Handsworth, Birmingham. Bldrs. Nom. cap.: £500. Dir.: M. C. Clark.

T. Pickles (Morecambe), Ltd. (587945.) Regd. July 26. Croft Works, Thornton-rd., Morecambe and Heysham. Bldrs. Nom. cap.: £1,000. Dir.: J. T. Pickles.

John Sutton, Ltd. (587972.) Regd. July 26. Old Post Office-la., Badsey, Worcs. Bldr. and contr. Nom. cap.: £2,000. Dir.: J. H. Sutton.

Lampitt & Son (Malvern), Ltd. (587973.) Regd. July 26. 17, Goodwood-rd., Malvern Link. Bldrs. and contrs. Nom. cap.: £20,000. Dir.: C. C. Lampitt.

Goodfellows (Maintenance), Ltd. (587984.) Regd. July 26. Lloyds Bank-chmbrs., Keswick, Cumberland. Bldrs. Nom. cap.: £1,000. Permt. dir.: M. J. M. Thompson.

E. Boldy, Ltd. (587988.) Regd. July 26. 1, Norfolk-st., Bradford. Bldrs., and contrs. Nom. cap.: £100. Dir.: T. Considine.

T. Baines, Ltd. (588019.) Regd. July 29. 30, Blandford-st., Sunderland. Bldrs. Nom. cap.: £200. Dir. T. C. Baines.

Ruislip (Hampshire), Development Co., Ltd. (588054.) Regd. July 29. 56, Grosvenor-st., W1 Nom. cap.: £100. Sub.: Helen Reading.

OVERSEAS BUILDING

From Our Own Correspondents

BRAZIL.—The President of the Republic has approved a law providing for the establishment of a limited company to build a thermo-electric power station in the district of Figueira, in Parana, to generate 20,000 kw. . . . It is reported that the Bacardi Co. of Cuba intend to install a factory to produce rum in Sao Paulo. It will be the largest of its kind in Brazil. . . . According to newspaper reports, the Borgward do Brazil company have decided to build a factory at Barra do Firai in the state of Rio de Janeiro, to produce lorries, with a production target of 10,000 units by 1960. . . . It is expected that terms of the tender for the Rio/Niteroi tunnel will be published shortly. According to the Press, 17 American firms, one British and one Dutch company are interested in the business.

CHINESE PEOPLE'S REPUBLIC.—The French Government mission headed by M. Rochereau from the Senate Committee for Economic Affairs, and including M. Courbot, Chairman of the Public Works Federation, has arrived in Pekin for talks relating to development schemes. These will include the Yangtse River project and some of the new railway systems proposed by the Chinese People's Government. The French 'Banque de l'Union des Mines' and the Credit Lyonnaise are likely to sponsor the financial assistance of certain projects as loans for railways, collieries and electric power schemes. . . . The municipal Pa Hsien Chiao cemetery, in central Shanghai, is to be moved about 16 miles further out, to Chi An, to enable the site to be used for the requirements of municipal reconstruction.

GREECE.—It has been announced that a call for tenders will be issued in the next few months for the construction of a further thermo-electric power station at Ptolemais, with a capacity of 100,000 kw. This is part of the Public Power Corporation's five-year plan, and the station will service various new heavy industries in the area. . . . The Government has been subjected to criticism for its decision to devote $15m. of Italian reparations to the construction of one or more sugar refineries instead of the Acheloos hydro-electric project, which is apparently being shelved. . . . Dr. 40m. has been granted for the construction or repair of provincial hotels. A substantial loan has also been granted to the Grande Bretagne hotel in Athens for reconstruction work. Should no bids be received in connection with the Vouligameni project, the Greek 'Astir' Co. will construct a hotel in that area.

HONG KONG.—The tallest building in the Orient, the 34-storey Fu Centre in Connaught-road, Hong Kong, is to have a foundation piling system developed in Japan. It is noiseless and vibrationless and will be carried out entirely by Japanese technicians and labour. Architect is Eric Cumine, AADip, FRIBA, and the engineer J. W. C. Chan, of Eric Cumine's office. . . . As part of the $16m. City Hall being designed in the architectural office of the PWD (chief architect G. P. Norton, ARIBA), a Garden of Remembrance will be formed as a memorial to the Hong Kong Volunteers who died in the defence of the Colony. A model, just put on view, shows a walled garden with bronze entrance gates and an octagonal shrine with plaques of a roll of honour. It is expected that work will start in 1958, but so far only $50,000 has been subscribed towards the cost. . . . Tenders have been invited for a new police post at Mui Wo, Silvermine Bay, to plans by S. S. Kwan, authorised architect. The building, estimated to cost $500,000, will have two storeys with accommodation for 30 policemen. It replaces a temporary structure.

INDONESIA.—It is announced in Djakarta that the Government has agreed to spend 50m. rupiahs on a three-year road-repair scheme.

IRAN. — The Plan Organisation announced recently that a National Electricity Authority will be established in the near future to carry out the Plan Organisation's electrification project on a nation-wide basis. The Authority will be composed of four internationally known electricity concerns (British, German, French and Belgian) and will carry out the electrification programme with foreign credit and funds already allocated under the Seven Year Plan. The project is now before the Cabinet where it has encountered some initial opposition. . . . Mr. Meykadeh, head of the Tehran Water Board, who is in charge of a £30m. dam project in the Lar Valley, north of Tehran, has expressed the hope that a decision will soon be reached to construct this dam, as the British consulting engineers have pointed out the shortage of water which will otherwise develop in the Tehran and surrounding areas over the next ten years.

ITALY.—Montecatini is to build a new factory at Campofranco, near Agrigentum, in Sicily, for the production of potassic fertiliser. The factory will be on a scale to produce 50,000 tons per annum. . . . The Viani Co. of Rome has secured a contract for the improvement of Tripoli harbour in the Lebanon. . . . CEAT, of Turin, have signed an agreement with Tata, of India, for the construction of a tyre factory.

NEW ZEALAND.—The Government has authorised the calling of tenders for the new school of engineering at Canterbury University College, Christchurch. The school, which will have 126,000 sq. ft. of floor space, comprising lecture rooms, laboratories, library and staff rooms, was designed by government architect, Mr. F. G. Wilson. It will cater for 300 students. . . . A tourist hotel, estimated to cost £300,000, is proposed for Waitangi, in the Bay of Islands, said Minister in charge of Tourist and Health Resorts, Mr. D. J. Eyre. It is proposed by the Tourist Hotel Corporation to erect an hotel with accommodation for 90 guests. . . . When the new St. Paul's Anglican Cathedral is completed in Wellington, there will be incorporated in the church fragments of famous English Cathedrals.

SPAIN.—Some details of the emergency housing plan for Madrid, to which reference was made previously, were announced by the Minister of Housing recently. A law is in course of preparation which will provide for the construction of 60.000 new dwellings in the capital during the next two years. Priority is to be given to flats with a low rental, and the full co-operation of private enterprise is called for. A study of the housing shortage in Barcelona and other large towns is to be undertaken later. . . . It is reported that a new iron and steel plant which will consume some 127.500 tons of iron ore annually from the Bezos Albarracia district, is to be built in Teruel. A steel works is also to be erected at Lucena (Cordoba) with an initial capacity of 40 tons per day. . . . Authorisation has been granted for new cement factories and extensions to existing ones which will increase national capacity by 1,166,000 tons. Authorisation is pending for other projects which will add a further 935,000 tons per year to national capacity. The Government is supporting these projects.

THAILAND.—The Government of Thailand have announced that a leading Tokyo constructional engineering firm has produced plans for a giant multi-purpose dam project on the Mao Nam Ping river, near Bangkok. This is the first Thai-Japanese technical collaboration since the end of the war.

WESTERN AUSTRALIA.—At an estimated cost of £16m., it is proposed to construct a reservoir on the Ord River and create farms in the surrounding area for the production of tropical crops. . . . A proposed berth extension together with a jetty neck and embankment approach at the Wyndham Jetty will cost about £400,000—

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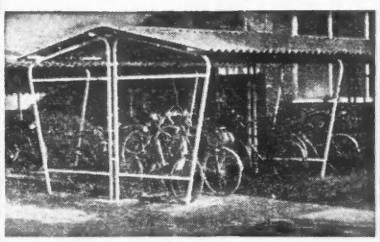

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at present there is one berth with a length of 300 ft., and the provision of additional berth space is considered by the State Government to be an important factor in the further development of the East Kimberleys. . . . As the present port of Derby is tidal and inadequate, it is proposed to construct a port at Black Rocks near Derby, as the vicinity is regarded as the proper site for a deep-water port to serve the West Kimberleys. The full project, which will cost £1,600,000, comprises the construction of a jetty at Point Torment (known as Black Rocks), also roads, stock route, houses, an hotel and water supply facilities, the transfer of the meatworks from Broome to Point Torment and eventually the transfer of the town of Derby to Point Torment . . . The North West Coastal Highway, which commences at Geraldton (312 miles north of Perth) and continues in a general northerly direction for 302 miles to Carnarvon, has been surfaced with bitumen to a point about 70 miles north of Geraldton, and it has been estimated that it will cost about £1,250,000 to provide a sealed road for the remainder of the distance. . . . It is proposed that there should be a deviation in the road between Pyramid and Tambrey involving the construction of a new road 36 miles long, costing £400,000.

CONTRACTS OPEN

***India:** One 1½-ton self-propelled diesel or diesel electric mobile crane for handling iron and steel materials. Bids to The Chief Engineer, Madras Port Trust, Madras, by September 25. Tender documents may be seen in Room 805 at Lacon House, Theobalds-road, WC1. (Ref.: ESB/21369/57. Tel.: Chancery 4411, ext. 738.)

***India:** A passenger elevator and a freight elevator, for Irrigation Department, Uttar Pradesh. Bids to the Executive Engineer, Rihand Dam Construction Division No. 11, Mirzapur (UP), by October 31. Tender documents seen in Room 805, Lacon House, WC1. (Ref.: ESB/21331/57; tel.: Chancery 4411, ext. 738.)

***Union of South Africa:** Supply, delivery, transport, handling, erection and maintenance of all plant and equipment required for the Point Sewage Pumping Station and its operation, for Corporation of the City of Durban, City Engineer's Department. Contract No. B2323. Bids to Town Clerk, City Hall, West-street, Durban, by January 3. Tender documents, including drawings seen at Room 805, Lacon House, WC1. (Ref.: ESB/18579/57; tel.: Chancery 411, ext. 738.)

***Union of South Africa:** 66 heavy duty motor graders, weighing approximately 22,500 lbs. including scarifier, enclosed cab, etc., of the single wheel, tandem rear drive type, for Transvaal Provincial Administration (D 474/57). Bids to Chairman, Transvaal Provincial Tender Board, PO Box 1040, Pretoria, by September 20. Tender documents seen at Room 805, Lacon House, WC1. (Ref.: ESB/21186/57; tel.: Chancery 4411, ext. 738.)

Dominican Republic Marble Exports

The Dominican Republic's marble exploiting firm, the Marmoleria Nacional, has begun exporting marble on a large scale to several countries, principally Porto Rico, the United States, Haiti and Venezuela.

Investigations have shown that there are deposits of several different types of marble in the Republic. The company also reports that it has located seams of travertine, a material with a great variety of uses, onyx and granite of various kinds.

A new $400,000 programme has been announced by the Dominican Republic firm of Industrias de Asbesto-Cemento for the production of pipes for water supply, drainage and other purposes. The interior diameter of the pipes produced will range from 2 to 17 in.

Companies Combine

Three more manufacturers of contractors' plant have joined United Construction Machinery Co., Ltd. They are Ruston-Bucyrus, Ltd., of Lincoln; Millars Machinery Co., Ltd., of Bishops Stortford; and Construction Machinery, Ltd., of Wakefield. UCMC, whose chairman is Mr. W. Muir Robb, now unites the effort of 12 companies in an export drive in Eastern bloc countries.

Master Scheme for Dacca

A London firm of architects and town-planners, Minoprio and Spencely, 18, Seymour-street, W1, has been commissioned by Britain to prepare a master scheme for the development of Dacca, East Pakistan capital, under the Colombo Plan.

Basrah Contract

The Iraq Development Board announced recently that George Wimpey and Co., London building contractors, have secured a contract, worth £2,628,251, for the construction of a housing estate at Basrah, Southern Iraq. A total of 1,776 houses will be erected.

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* From the Board of Trade Special Register Information Service. The telephone number and extension at the end of the paragraphs relate to the department of the Export Service Branch, Lacon House, Theobalds-road, WC1, where further information can be obtained.

The SCOTTISH BUILDER

Windowless Bathrooms

THE adoption of windowless bathrooms in the new town of Cumbernauld has been approved by the Secretary of State for Scotland. The Cumbernauld Development Corporation plans to use mechanical ventilation in internal bathrooms in housing to be erected on the Kildrim Estate. Dunbarton County Council opposed this plan and an appeal was made to the Scottish Office. The County Public Health Committee and County Officials will now consider this position. The proposal is of particular interest because of the departure from traditional constructional policy. Scottish bathrooms and lavatories are normally constructed with external windows giving direct ventilation. Mechanical ventilation of internal bathrooms breaks new ground and has found less support than was anticipated.

NEW BUILDINGS

Angus CC.—Construction of 5,000 gallon r.c. tank and laying of one mile of 3 in. a.c. pipes with other relative work for Dykehead Water Supply. Applications to County E, County-bldgs., Forfar.

East Lothian Water Board.—Contract 'S'—Laying and jointing of 5¾ miles 8 in. dia. steel pipes, together with ¾ mile of 4 in. and 3 in. dia. asbestos cement pipes commencing at Whittingehame Filter House, about 5 miles east of Haddington, and terminating at Spott Ford, about 2¾ miles south of Dunbar. Applications to G. H. Hill & Sons (Manchester), 51, Mosley-st., Manchester, 2. Dep. £5 5s. Sealed tenders, endorsed 'Tender for Contract "S,"' to the Board at County-bldgs., Haddington, October 11.

Grangemouth.—British Petroleum Refinery (Grangemouth), Ltd., received permission from Grangemouth Dean of Guild Court for alterations and erections, including crude oil distillation plant, at their Bo'ness-rd. premises. Est. cost £4 million. Also to construct causeway, costing £150,000, from Grangemouth Docks to the refinery.

Perth.—Design and construction of r.c. roof 38 ft. dia. at the Waterworks, Perth. Particulars and plans from S. G. Cockburn, engineer and manager, Marshall-pl., Perth.

SCOTTISH BUILDING TRADE WAGES

FOLLOWING are rates of wages authorised by the Scottish National Joint Council as from May 27, 1957. They apply to the whole of Scotland, including the islands of Orkney, Shetland, etc.

Grade A: Craftsmen 4s. 6d.; Labourers 3s. 11½d.

For apprentices, the rates are:

Year.	*Percentage of Craftsman's rate.*	*For week of 44 hours* s. d.
1st	25	49 6
2nd	33¼	66 0
3rd	50	99 0
4th	66¾	132 0
5th	75	148 6

For female labour, the rates are:

	s. d.
Operatives on craft operations (at end of probationary period)	3 11½
Operatives on labouring operations (at end of probationary period)	3 5½

The Builder FUTURE CONSTRUCTION

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

SEPTEMBER 13.

†**Birmingham City C.**—12 four-storey maisonettes at Court-la. City A. Dep. £2 2s. Tenders by Oct. 14.

SEPTEMBER 14.

Ashford (Kent) UDC.—87 dwellings at Beaver Green Farm—Section III. S. Dep. £3 3s.

SEPTEMBER 16.

†**Keynsham UDC.**—78 dwellings at Park West housing estate. E&S. Dep. £2 2s. Tenders by Oct. 15.

†**Somerset CC.**—Erection of Bridgwater Municipal College (Phase 1). County A. Dep. £2 2s.

SEPTEMBER 19.

*†**Ipswich CB.**—36 flats in blocks of four at Chantry Estate 2B. (Fixed price tenders.) BE&S, 19, Tower-st. Dep. £3 3s. Tenders by Oct. 24.

SEPTEMBER 20.

*†**Southampton CB.**—Contract B. 293A, 29 houses Thornhill section 2A: Contract B. 301, 32 old peoples' homes, Aldermoor; Contract B. 303, pair of houses, Oxford-rd. BE.

SEPTEMBER 21.

*†**Basildon UDC.**—11 bed-sitting room bungalows and four houses at Appletree-way, Wickford. E&S, 108, High-street, Billericay. Dep. £2 2s.

*†**Essex CC.**—Hutted accommodation at 1, King Edward-ave., Chelmsford. County A.

*†**Wolverhampton CB.**—Residential Special Sch. near Kingswood Common, Wrottesley. BE, Town Hall. Dep. £2 2s.

SEPTEMBER 23.

*†**Exeter City C.**—153 dwellings in six groups at Beacon-la., estate. City A. Dep. £3 3s.

*†**Willenhall UDC.**—32 garages on four sites. Architect, Town Hall.

SEPTEMBER 28.

*†**Burton-on-Trent CB.**—250 dwellings and 40 garages at Edge Hill estate. Boro' A. Dep. £3 3s.

SEPTEMBER 30.

Ellesmere Port BC.—24 houses and 36 garages at Fulwood-rd. estate. Boro' E&S. Dep. £3 3s.

*†**Glamorgan CC.**—Applications invited from contractors to be put on approved list of building contractors. County A.

*†**Tottenham BC.**—54 flats nine storeys high and nine dwellings two storeys high, at 672/4, High-rd. BE. Dep. £2 2s.

OCTOBER 1.

*Richmond (Surrey) BC.—Reconstruction of public convenience at George-st. BE. Dep. £2 2s.

OCTOBER 3.

Newcastle upon Tyne Corporation.—24 flats at Kenton North estate. City A.

OCTOBER 4.

*Walthamstow BC.—149 dwellings and 21 garages at Outwood Common, Billericay. Boro' AE&S. Dep. £2 2s.

OCTOBER 7.

*†**Portsmouth City C.**—Erection of (a) Divisional Police Headquarters, Civic Centre; (b) College of Art. City A, 1, Western Parade. Dep. £1 each contract.

OCTOBER 8.

*Berks CC.—Two practical rooms at St. Frideswides Girls' sec. mod. sch., Didcot. County A. Dep. £2 2s.

OCTOBER 10.

*Mid and South East Cheshire Water Board.—One pair of houses at Froncysyllte, nr. Ruabon. Delwyn G. Davies, Engineer and Manager, PO Box No. 4, Weaverham Grange, Hartford, Northwich. Dep. £2 2s.

OCTOBER 11.

*Barnstaple BC.—52 houses at Zephyr estate. BS. Dep. £2 2s.

OCTOBER 15

Brownhills UDC.—35 dwellings at Mosspits, Shelfield. E&S. Dep. £2 2s.

PAINTING, MATERIALS, ETC.

SEPTEMBER 20.

*†**Bristol City C.**—Provision of electrical installation at Hartcliffe Sec. Sch. City A. Dep. £2 2s.

MUNICIPAL AND CIVIL ENGINEERING WORKS, ETC.

SEPTEMBER 16.

†**Prestwich Corpn.**—Reconstruction of two rectangular filter beds, construction of two motor houses and incidental works at sewage disposal works, Prestwich. Willcox, Raikes & Marshall, engrs., 33, Great Charles-st., Birmingham 3. Dep. £5 5s. Tenders by Oct. 7.

SEPTEMBER 23.

Cuckfield RDC.—1,900 lin. yd. of 6 in. dia., 440 lin. yd. of 4 in. dia. pitch fibre pipes and 27 manholes at Clayton. E&S. Dep. £2 2s.

Cwmbran UDC.—380 yd. of 33, 36, and 42 in. dia. concrete pipework, 500 yd. of 6 in. and 9 in. sewer, 1,000 sq. yd. of stone and macadam carriageway and ancillary works at Lightwood housing estate. Ccl's. S. Dep. £2 2s.

SEPTEMBER 24.

Sunderland CB.—13,000 sq. yd. of flagged footpath at Hylton Red House estate (Phase III). Boro' E. Dep. £2 2s.

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SEPTEMBER 25.

Ashton-under-Lyne BC.—Central cleansing depot with road works and sewers at Wellington-rd. Boro' S. Dep. £2 2s.

Godalming BC.—53 lin. yd. of 21 in. dia., 53 lin. yd. of 24 in dia. concrete pipes as culverts, 1,263 sup. yd. of r.c. carriageway with appurtenant works. Boro' E&S. £2 2s.

SEPTEMBER 26.

Staffordshire CC.—Road improvement works at two sections of Birmingham-Wolverhampton trunk road, A.4123. C. Dep. £5.

SEPTEMBER 27.

Aylesbury BC.—600 lin. yd. of carriageway, 350 lin. yd. surfacing, 400 lin. yd. of soil and surface water sewers, site strip and site works. Boro' E&S. Dep. £2 2s.

Woking UDC.—11,500 sq. yd. of footway, 17,000 sq. yd. surfacing to carriageway, 3,700 sq. yd. of verges and ancillary works. E&S. Dep. £2 2s.

SEPTEMBER 28.

Surrey CC.—Reconstruction of Haxted Mill bridge (24 ft. span, 36 ft. width) and Culvert (100 ft. long), nr. Edenbridge. County E.

SEPTEMBER 30.

Bexhill BC.—700 lin. yd. of 15 and 18 in. dia. concrete tube foul sewer with eight precast concrete manholes at Down-rd. Boro' S. Dep. £2 2s.

Kettering RDC.—5,000 yd. of 15 in., 9 in., and 6 in. dia. sewers, sewage disposal works at Cottingham and Middleton, nr. Corby. Pick, Everard, Keay & Gimson, engrs., 6, Millstone-la., Leicester. Dep. £2 2s.

OCTOBER 2.

*Southend-on-Sea CB.—Resurfacing playgrounds at various schools. Boro' A.

OCTOBER 3.

Neath BC.—1,450 yd. of 9 in. glazed stoneware and concrete pipes, 120 yd. of 18 in. dia. concrete pipes, 100 lin. yd. of 7 in. dia. spun-iron pipes with manholes and other works at Torma. Boro' E. Dep. £2 2s.

OCTOBER 4.

Conisbrough UDC.—Four filter beds, three settling tanks, two humus tanks, one pumping station and ancillary pipework, roadworks, etc., at Denaby-la. sewage treatment works. J. H. Haiste & Ptnrs., Belmont-hse., 20, Wood-la., Headingley, Leeds. Dep. £3 3s.

OCTOBER 5.

Cheltenham RDC.—100,000 gall. reservoir in r.c., 2,600 lin. yd. of 4 in. S.I. water main at Winchcombe. J. H. Haiste & Ptnrs., constg. engrs., Suite 2, 8-10, Southgate-st., Gloucester. Dep. £3 3s.

Preston BC.—Structural steelwork and r.c. construction at Fishergate bridge. Boro' E&S. Dep. £2.

OCTOBER 7.

East Riding CC.—Demolition of existing bridge and construction of r.c. bridge (20 ft. span, 40 ft. 6 in. width) over Barmston (Sea End) drain, at Hull-White Cross-Bridlington-rd., A.165. County S. £2.

Stafford RDC.—6,930 yd. of 4 in. and 9,200 yd. of 3 in. dia. asbesto-cement pressure pipes, 600 yd. of 4 in. and 4,540 yd. of 3 in. spun-iron pipes, etc., at Haughton, Ranton and Bradley nr. Stafford. Elliot & Brown, constg. engrs., Stanley-hse., Pelham-rd., Nottingham. Dep. £5 5s.

OCTOBER 12.

Glanford Brigg RDC.—4,800 yd. of 6 in. dia. salt glazed ware and spun-iron sewers with precast concrete manholes, 550 yd. of 4 in. dia. spun-iron rising main, one sewage pumping station and partial treatment sewage disposal works at Burton Strather. J. H. Haiste & Ptnrs., Belmont-hse, 20, Wood-la., Headingley, Leeds. Dep. £3 3s.

NOVEMBER 4.

Truro RDC.—Mass concrete work, rebuilding of existing filter, connecting pipework, etc., at Grampound-rd. sewage treatment works. Osmand & Lane, contg. engrs., Trevemper Lodge, Trevemper-bge., Newquay. Dep. £2 2s.

GENERAL BUILDING WORK

(LONDON)

Bermondsey.—MAISONETTES, FLATS AND GARAGES.—The Housing Com. has approved plans for a Y-shaped block of 12 three-bedroom and 32 two-bedroom maisonettes, eight bed-sitting room flats, with a central shaft containing lifts and staircases and tenants' stores on the ground floor of one wing on a site bounded by Luxford-st., Rotherhithe New-rd. and St. Helena-rd. A block of garages is also proposed on the site. The architects are Stock, Page & Stock (F/F), Fanshaw-hse., Fanshaw-st., N1.

Chislehurst and Sidcup.—HOUSES AND GARAGES.—The Minister of Housing and Local Government has provisionally approved the UDC's scheme for 132 two- and three-bedroom houses and 27 garages on a site of 13½ acres at North Cray Place estate, North Cray. The Council's E&S is W. B. Farrow, AMICE, MIMunE.

Romford.—REDEVELOPMENT.—The Minister of Housing and Local Government has approved the BC's modified proposals for the redevelopment of the Waterloo-rd. area by large blocks of flats and a number of shops. Detailed plans have not yet been approved by the Council. The Boro' E&S is H. Hurd, AMICE, MIMunE.

(PROVINCIAL)

Accrington.—MH&LG has approved in principle plans for new market, £90,000 est., between Broadway and Peel-st., as part of scheme for remodelling central area which will include new 'bus station, municipal offices and block of shops (est. total £200,000). Boro' ES&A: G. Heys, MSc (Tech.), MIMunE.

Atherton.—UDC proposes construction of depot buildings at Water-st.

Barrow-in-Furness.—BC proposes eight flats at Rainey-pk. site.

Birkenhead.—Ravenseft Properties, Ltd., 52, Charles-st., W1, propose shops at Grange-rd.

Birmingham.—TC to lease site at Weaman-st. to Stewarts & Lloyds, Ltd., for shop premises and site at Great Lister-st. to the Birmingham Lithocraft Co., Ltd., for new premises.

Blackpool.—BC to consider erection of multi-storey flats at Bispham and invite tenders for 14 garages at Rossett-ave., Mereside estate.

Blackpool.—BC to proceed with first instalment of extension at Hawes Side prim. sch., £11,630 est.

Blyth.—Boro' E. D. W. Foster, has prepared £67,000 scheme for 66 houses, including 18 bungalows and 48 single persons' flats.—TC considering erection of 47 houses in the Patterdale-rd. area, and aged persons' bungalows and shops near Delaval-gdns.—D. Balfour & Sons, constg. engrs., 145, Pilgrim-st., Newcastle-on-Tyne, to submit report soon to TC on proposed sewerage scheme for Gordon-rd. area.

Bolton.—M of W proposes office and garage accommodation at Central-st.

Bolton.—BC proposes bus station at Soho-st.—Hostel for 50 aged persons at The Hollies, Breightmet.—Adaptations at St. Thomas' Halliwell C of E sch.

Bootle.—BC to negotiate with Direct Labour Dept. for erection of shops at Derby-rd. clearance area.

Bradford.—Graham Properties (Bradford), Ltd. proposes shops and offices on site bounded by Market-st., Bridge-st. and Leeds-rd. A: Bernard Engle (F), 8, New-sq., WC2.

Bridgnorth.—TC approved plans for extensions to Meadow Works for A. T. & E. (Bridgnorth), Ltd.—New showroom at High-st. for W. Williams (Bridgnorth), Ltd.—Propose erection of Gregory type flats at The Grove site.

Bury.—Thomas Hardman & Sons, Ltd. propose rebuilding of preparation department after fire damage.

Cambridge.—Reconstruction works at Trinity College. Constg. engrs. and architects: Husband & Co., 388, Glossop-rd., Sheffield. *J. Youngs & Sons, Ltd., City-rd., Norwich. Over £100,000.

Chesterfield.—BC to negotiate with William Drabble & Sons, Ltd., Mosborough, for erection of 70 houses.

Crompton.—UDC proposes unit of 20 flats and 8 bedrooms for elderly people at Queen-st. estate.

Cumberland.—CC to receive grant of £18,700 towards £25,000 scheme for reconstruction and widening of Cock Bridge on the Cockermouth-Thursby rd. County S: F. L. Broughton, Carlisle.

Darlaston.—UDC proposes bungalows at Bentley Cairn for aged people.

Darlington.—Plans by Boro' E. G. S. Short, for construction of sewers on Firth Moor estate have been approved.—Plans approved for further houses at Hummersknott-ave. for Bussey & Armstrong, Ltd., Brinkburn-rd., Darlington.—TC propose to extend Milbank-rd. Preliminary negotiations taking place in connection with scheme.

Darlington.—TC approved proposals by Boro' E. G. S. Short, Town Hall, Darlington, for reorganising town's main sewerage system.

Dawley.—UDC seeks loan consent for £371,543 for 244 houses and 38 garages at Langley Farm estate, including 200 houses for Birmingham overspill.

Dewsbury.—BC proposes eight flats and six bungalows in the Asylum-rd. area.—To prepare plans for sec. tech. sch.—Proposes redevelopment of town centre by erection of shops.

Dudley.—Thomas Dudley, Ltd. propose extensions to foundry at Birmingham New-rd. A: Scott & Clark, Regent-chmbrs., Wednesbury.

Durham.—CC plans erection of junior and infants' sch. in the Boldon overspill area. County A: G. R. Clayton (F), South-st., Durham.

Durham.—E. Gilderoy, builder, Allergate, Durham, proposes housing developments near Sniperley estate, Framwellgate Moor.

Durham.—CC proposes prim. sch. at Newton Aycliffe. County A: G. R. Clayton (F), South-st., Durham.

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Durham.—RDC received loan sanction for £17,761 for 12 houses at Pittington, and £31,144 for 22 houses at Quarrington Hill. Ccl. A: J. F. Willis, Byland Lodge, Durham.—Council planning erection of 16 houses at rear of Hall-garth-st., Sherburn.

Durham.—Plans in hand for erection of pit-head baths, medical centre and canteen at Bear-park Colliery. NCB Architects Dept. (Durham Division), 24, The Side, Newcastle-on-Tyne.

East Retford.—TC approved scheme for conversion of West Retford Hall into flats.

Gatley.—Congregational Church proposes erection of new church, £20,000 est. Work to commence next spring.

Golborne.—J. & T. Peters, Glazebury Corn Mills, propose erection of 20 houses at Warrington-rd., Glazebury. Inquiry held.

Gosforth.—Cussins (Builders), Ltd., The Drive, Gosforth, Newcastle, have had layout plans approved for 10 houses at Kenton Park.

Harrogate.—Governors of Ashville College propose new science block, £50,000 est. A: Lunn & Lunn, 92, Market-st., Milnsbridge, Huddersfield.

Hathersage.—Messrs. Finnegans, Ltd., Sheffield, propose erection of 60 houses at Coggers-la.

Heywood.—Industrial Co-operative Socy., Ltd. propose new shops at Middleton-rd.

Huddersfield.—Holset Engineering Co., Ltd. propose extensions to their factory at Turnbridge.

Ince-in-Makerfield.—UDC approved 20 flats and 56 houses at Chemical Fields extension site.

Liverpool.—Regional Hospital Bd. propose Outpatients' dept. at Chester Royal Infirmary, £260,000 est.—Ante-natal clinic at Sefton General Hospital, £35,025 est.—Phase 3 of extensions to X-ray and dental depts. at Broad-green Hospital, £78,850 est.—Appointed Quiggin & Gee (F/A), 11, Old Hall-st., Liverpool, architects for patients' shop at Rainhill.

Luton.—London CC, as agent for RDC, to build 1,400 houses on 200-acre site at Houghton Regis under Town Development Act.

Maghull.—Sefton Building Co., Ltd. propose development of private housing estate on the east side of Northway.

Manchester.—Hotel at Charlestown-rd. and Belthorn-ave., Moston, for Peter Walker (Warrington), Ltd. A: C. E. Bracken (L), 98, Oxford-rd., Manchester.

Middlesbrough.—Plans approved for alterations and extensions to Corporation slipper baths at Cannon-st. Boro' E: J. A. Kenyon.

Morpeth.—Plans being prepared for alterations and extensions, including new buildings, at grammar sch. County A, County Hall, Newcastle.

Newcastle upon Tyne.—Newcastle & Gateshead Water Co., Pilgrim-st., Newcastle, have taken over Hexham Urban Council water undertaking and intend laying new pipeline, £73,000 est.

Newcastle-on-Tyne.—Cackett, Burns Dick & MacKellar (F/A), 21, Ellison-pl., Newcastle-on-Tyne, are architects for proposed office block and caretaker's house at West-rd. and Denhill-pk. for R. Hood, Haggie & Son, Ltd.—Alterations and additions proposed to Walker Social Club, Middle-st. A: J. M. Angus (L), 3, Gallowgate, Newcastle-on-Tyne.—City Council to place contract for erection of 24 flats for single women at Kenton North estate. City A: G. Kenyon (A), 18, Cloth-market, Newcastle-on-Tyne.

North Wales.—Central Electricity Authority propose atomic power station at Edeyrn, Caernarvonshire, and Trawsfynydd, Merionethshire.

Otley.—UDC proposes 76 houses at Weston-la. estate, £103,986 est.

Rainford.—UDC proposes 16 bungalows at rear of St. Helen's-rd.

Redcar.—Boro' E. K. W. Ash, to report to TC on cost of converting New Pavilion Theatre into ballroom.

Rowley Regis.—TC approved plans for extensions at Foxoak-st. for B.W.B. Engineering Co.

Sedgefield (Co. Durham).—Newcastle Hospital Bd., Benfield-rd., Newcastle-on-Tyne, proposes £30,000 extension scheme to sewage

disposal works at Winterton Hospital. D. Balfour & Sons, constg. engrs., 145, Pilgrim-st., Newcastle-on-Tyne.

Sheffield.—TC received Ministry approval for wholesale market at Kettlebridge, Darnall, £700,000 est.

South Shields.—EC has secured site at Westoe for students' hostel at Marine and Technical Col. Boro' E: J. Reid.

Southwell.—RDC proposes four bungalows and eight houses at Boughton, 14 dwellings at Bilsthorpe and two at Eaking.

Stockton.—TC preparing plans for houses and blocks of flats on clearance areas at east end of borough. Housing A.

Sunderland.—Planning approvals under by-laws.—Six bungalows at High Barnes estate for J. W. Ridley, Ltd., and houses at High Barnes estate for I. Smith, A: Wm. & T. R. Milburn (A/A), 9, The Esplanade.

Sunderland.—Fina Petroleum Products, Ltd. to build oil storage tank (60 ft. high, 3,500 tons cap.) on Corporation quay.

Sunderland.—Boro' A, H. C. Bishop (A), Grange-hse., Stockton-rd., Sunderland, has prepared plans for 138 dwellings at Hylton Castle estate.

Sunderland.—Corporation Estates com. approved in principle garages for Council house tenants on corner sites on Corporation housing estates. Council has included £20,000 in its estimates for work. Boro' A: H. C. Bishop (A), Grange-hse., Stockton-rd., Sunderland.

Sunderland.—Plans in hand for RC church at Chiswick-rd., Hylton Castle estate. A: R. A. Ronchetti (L), 3, Princes-sq., Harrogate, York.

Tutbury.—RDC proposes erection of 28 houses at Croft site.

Tynemouth.—TC to proceed with amended scheme for 69 dwellings in five-storey blocks at Tyne-st. Austin Child (F), 6, Archbold-terr., Newcastle.

Tynemouth.—Tenders again being obtained by TC for first stage of £750,000 scheme for blocks of flats at East End of North Shields. The first tenders were rejected as too high by Ministry, and if tenders now being obtained are again turned down, Council may revise entire project and seek permission to carry it out in one stage in three years instead of over period of ten years. In that event, the Council would negotiate a price with Wimpey & Co., Ltd., Orchard-hse., Fenwick-terr., Newcastle-on-Tyne, who are already building for the Council. A: F. A. Child (F), 6, Archbold-terr, Newcastle-on-Tyne. QS: J. W. Summers & Ptnrs., Jesmond-rd., Newcastle-on-Tyne.

West Hartlepool.—TC to negotiate price with A. W. Fortune, Hart-rd., West Hartlepool, and J. Peel, Glentower-gr., Seaton Carew, for nine houses at Owton Manor estate.—Plans approved for 32 houses in the Suggitt-st. area for H. Ripley, Linden-gr., West Hartlepool.

Whiston.—RDC proposes 27 bungalows at Swan Farm estate, Rainhill.

Whitefield.—UDC to sell site at Elms estate to Lancs. CC for Stand All Saints C of E sch. and nursery sch.—Public hall and library at junction of Higher-la. and Pinfold-la.

Wigan.—J. W. Liptrot & Co., Ltd. propose 34 houses to the south of Chapel-st. Farm, Pemberton. Inquiry held.

Wilmslow.—UDC to negotiate contract for eight maisonettes at Twinnies-rd. site.—Metropolitan Commercial Property Investments, Ltd. propose shops and offices at Alderley-rd.—Macclesfield Co-operative Socy., Ltd. propose shop at Lacey-grn.

TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government Departments.*

Bearpark (Co. Durham).—Church Hall. A: Cordingley & McIntyre, Owengate, Durham. *H. Mole, Sacriston, Co. Durham.

Blyth.—50 houses for TC. Boro' E: D. W. Foster. *Myton, Ltd., Hull, £69,790.

Blyth.—Roads and sewers at Seaton Sluice housing site for TC. Boro' E: D. W. Foster. *Myton, Ltd., Hull, £16,993.

Birmingham.—Alterations and additions to 'K' block at Highcroft Hospital for Regional Hospital Bd. *A. Franklin & Sons, Ltd., 44, Hampstead-rd., Handsworth, Birmingham.

Birmingham.—Works for City C. City A: A. G. Sheppard Fidler (F), AMTPI:—160 dwellings, The Firs estate, Castle Bromwich, *Geo. Stubbings, Ltd., 201, Streetly-rd., Birmingham, 23, £379,114; five shops and 23 dwellings, Ley Hill estate, *Geo. Wimpey & Co., Ltd., Hammersmith-gr., W6, £63,407; Blakesley-rd. jun. and infants' sch., *F. Deeley, Ltd., 208, High-st., Harborne, Birmingham, 17, £80,452; Aston Technical College extensions, *Edgar Crowder (Builders), Ltd., Old Walsall-rd., Birmingham, 22A, £74,959.

Brownhills.—Erection of eight houses, Commonside, Wallsall-rd.; four bungalows, Hawthorn-rd., Shelfield, for UDC. E&S: C. H. Hunt. QS: R. Ewbank. *E. A. Tebbett, Ltd., Shire Oak, Brownhills (eight houses), £10,237; (four bungalows) £4,403.

Burnley.—Office block at Victoria Works for W. H. Dean & Son, Ltd. *Mullen & Durkin, Ltd., Trafalgar-st., Burnley.

Carlisle.—Inn at Harraby for State Management Scheme. *John Laing & Sons, Dalston-rd., Carlisle.

Cheltenham.—26 houses, 4 bungalows and 24 flats together with outbuildings and external services at Swindon-rd. development for BC. Malvern-st., scheme. Boro' E&A: G. Gould Marsland, MBE. *Five Oaks Estates, Ltd., Five Oaks. Radford, Compton, Wolverhampton. £75,980.

Cumberland.—Extensions at Millom sch. for CC. *John Laing & Son, Ltd., Carlisle, £213,000.

Denbighshire.—Conversion of Llangollen grammar sch. into bilateral sch. for CC. *W. F. Humphreys, Ltd., Acrefair, Wrexham, £184,810.

Derby.—Public-house, 'The Beacon,' at Breadsall Hill Top for Strettons Derby Brewery, Ltd. *Gee, Walker & Slater, Ltd., Uttoxeter Old Road, Derby.

Droitwich.—Four bungalows at Hartlebury and four houses at Crowle for RDC. *Drury & Co., Ltd., 92, London-rd., Kettering, £4,486 and £5,659.

Durham.—Residential college for men, University of Durham. A: T. Worthington & Son (F/F), 178, Oxford-rd., Manchester. J. & W. Lowry, 64, Bath-la., Newcastle-on-Tyne, £325,000.

Gateshead.—New premises near Leonards-crt. for Gateshead Central Social Club. A: Arthur & Kirkup (L/L), 13, Swinburne-st., Gateshead. *A. Ramage, Ltd., 351, Old Durham-rd., Gateshead.

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Guildford.—10 dwellings and ancillary works at Wharf-la. for RDC. E&S: J. W. Snape. QS: Messrs. John McBain & Ptnrs. *The Godalming Building & Construction Co., Ltd., £10,990; Holt Bros. (Godalming), Ltd., £11,274; A. W. Middleton & Co., £11,860; H. J. Titcomb & Sons, Ltd., £12,857; E. K. Green & Co., £13,014; A. & J. Simmons, Ltd., £13,544; Uden & Co. (Epsom), Ltd., £13,698.

Ilkley.—Conversion of The Lawns, Burnley in Wharfedale into 24 flats for UDC. *O'Brien & Richmond, Ltd., Otley, £19,370.

Kettering.—Extensions at Convent sch., Hall-cl., for RC authorities. *H. B. Pearce, Ltd., Finedon, £20,148.

Liverpool.—Alterations and additions to premises at Island-rd., South Garston, for Ministry of Labour and National Service. *C. & G. L. Desoer, Ltd., Liverpool.—Erection of goods department shed at Spekeland-rd. for British Railways. *Norwest Construction Co., Ltd., Litherland, Liverpool.

¶London (Air Ministry).—New works contracts to value of £500 or over for week ended September 6:—Civil engineering: Prestwick, Ayrshire, Kings & Co., Ltd., 19, Woodside-cres., Glasgow, C3; Chicksands, Beds., William Sindall, Ltd., Gloucester-st., Cambridge. Building work: East Kirkby, Lincs., Spooners (Hull), Ltd., Glebe-rd., Stoneferry, Hull; Greenham Common, Berks., Holborow Construction, Ltd., Love-la., Cirencester, Glos. Painting work: Hurn, Hampshire, C. A. Hayes & Sons (Painting), Ltd., Stork-hse, Hotwells, Bristol, 8; Stanstead, Essex, J. E. Cheeseman & Co., Ltd., 76, Beechcroft-gdns., Wembley Park, Middlesex. Heating and ventilating: Burtonwood and Croft, Kitsons Insulations, Ltd., 24, Turner-st., Warrington, Lancs.; Waddington, Lincs., Heating and General Eng. Co. (Catford), Ltd., 77-79, Rushey Green, Catford, SE6. Artificers' work: Old Sarum, Wilts., Willcocks & Stephens, Ltd., Lower Polsham-rd., Paignton, Devon; Aston Down, Glos., Holborow Construction, Ltd., Love-la., Cirencester, Glos. Prep. and maintenance land: Bentwaters, Woodbridge, Suffolk. E. Doe & Sons (Contracts), Ltd., Fyfield, Ongar, Essex.

London (British Railways). — Contracts placed by London Midland Region:—W. H. Heywood & Co., Ltd., Hope-hse., Gt. Peter-st., Westminster, SW1, for partial renewal of roof covering with patent glazing at Brunswick Goods Depot, Liverpool.—Wellerman Bros., Ltd., Dun-st., Sheffield 3, for relining air shaft in Blea Moor Tunnel, Settle and Carlisle line.—L. Fairclough, Ltd., 3, Chapel-st., Adlington, Lancs, for reorganisation of power supply, Birkenhead Green Lane substation, Mersey and Wirral electrified lines.—Kyle Stewart (Contractors), Ltd., 338, Kilburn High-rd., NW6, for general repairs to roofs of smithy (Old Works) loco. workshops, Crewe.—Marple & Gillett, Ltd., Arnold Works, Stevenson-rd., Sheffield 9, for removal of track at Great Dalby, Lowesby and Ingarsby.—Edward Wood & Sons, Ltd., 70, Park-st., Derby, for staff accommodation (Central Electricity Authority), Repton and Willington.

¶London (Metropolitan Police).—Result of tenders for building works.—*Decorations and repairs:* 8, Muswell Hill, N10, F. W. James & Sons (Whetstone), Ltd., £752; Barking PS, A. E. Field (Builders), Ltd., £586; Arbour-sq. PS, R. Woollaston & Co., £1,482; East Ham PS, R. Mansell, Ltd., £2,256.

¶London (War Dept.).—Works contracts placed for week ended August 30.—*Dorset:* Building, James Drewett & Son, Ltd., Bournemouth. *Essex:* Roadwork, W. & J. Glossop, Ltd., London. *Surrey:* Painting and decorating, Fields, Ltd., Reading. *Wiltshire:* Lightning conductors, Ferris Bros., Swindon.

Matlock.—26 houses at Hurst Farm estate for UDC. *Bowmer & Kirkland, Ltd., Heage, nr. Belper.

Newcastle upon Tyne.—Shops and stores at Shield-st. *S. F. Davidson & Son, 123, New Bridge-st., Newcastle.

Northwich.—New headquarters building at Winnington Works for ICI, Ltd., Alkali Division. *G. & J. Seddon, Ltd., 55, Duke-st., Longton, Stoke-on-Trent.

Preston.—New Barton High Level bridge over Manchester Ship Canal for Lancs CC.

County S. and Bridgemaster: James Drake, MICE, MIMunE. *G. Dew & Co., Ltd., Oldham, £1,750,000.

Rotherham.—224 houses and 51 garages at Kimberworth Park estate for CB. BE: E. Hanson. QS: Henry Vale & Sons, Wolverhampton. *O. Weaver & Sons, Ltd., Harlington-rd., Mexborough, nr. Rotherham.

Rowley Regis.—86 houses at Tividale Hall estate for TC. *Direct labour, £126,096.

Selby.—10 dwellings adjoining Westbourne-gr. for UDC. G. L. Thompson (F), 22, Park-st., Selby. QS: Ullathorne & Dunling, Hull. *Squire W. Swift, Ltd., Porthholme Works, Selby, £15,102. Subject to approval by MH&LG. R. K. Poskitt (Beal), Ltd., Beal, nr. Goole, £15,290; Hogarth Wootton & Co., Ltd., Dringhouses, nr. York, £15,707.

Sheffield.—Sludge press house for TC. *Norwest Construction Co., Ltd., £138,897.

Sheffield.—64 garages at Greenhill-Broadway estate for TC. *H. R. Smith (Contractors), Ltd., 23, Clyde-rd., Sheffield, £8,722. As an addition to original contract for 250 garages. Firm price basis.

Shildon.—Five shops and two flats at Jubilee Fields estate, and 50 houses, for UDC to plans by S. *Direct labour.

Southampton.—Contract B200, one shop and seven flats, Bassett Green-rd.; contract B222, 33 old people's homes, Weston Farm site; contract B271, 14 shops and 18 flats, Weston Farm site; contract B288, 57 old people's homes, Thornhill, section 2; contract B289, 45 old people's homes, Thornhill, section 3, for CB. BE: F. L. Wooldridge, MICE, MIMunE. Chief QS: J. H. Banner. B200. *H. Lane, 2, Northlands-rd., Southampton, £12,841 (Quantities by Boro' E Dept.); B222. *Hawkins Bros., Ltd., Gosport, Hants, £50,028 (Quantities, C. A. McPherson & Ptnrs.); B271. *A. J. Dunning & Sons, Ltd., Weyhill, Hants, £82,541 (Quantities, E. Morley-Smith); B288. *W. & R. Hedges, Chandlers Ford, Hants, £78,442; B289. *W. & R. Hedges, Chandlers Ford, Hants, £64,472 (Quantities, C. A. McPherson & Ptnrs.). (Subject to Ministry approval.)

Stockport.—Brinnington sec. sch. for EC. *F. J. Gibson, Ltd., Manchester-rd., Wilmslow, £115,000.

Sunderland.—Site preparation works at Grindon Village estate (Phase II) for CBC. ‡Farrans, Ltd., Edinburgh. £42,953.

Sunderland.—Six shops and flats and six garages at Hylton Castle estate for CBC. ‡T. Addison, Sunderland. £28,603.

Sunderland.—86 dwellings at Lawrence-st. area for CBC. ‡John Twiname, Ltd., Cockermouth. £127,166.

Sunderland.—118 houses at Tunstall-bank for RDC. S: C. Emmerson, Esplanade, Sunderland. *Direct labour.

Warrington.—Following for TC at Orford estate:—20 flats. *Clough & Gaskell, Ltd., Wigan, £23,270.—20 flats. *F. Berry & Son, Ltd., Warrington, £23,190.—Eight houses and eight flats. *A. J. Clarke, Ltd., Warrington, £20,319.—12 houses. *H. Smart, Warrington, £16,669.

Windsor.—30 houses at Burnetts-rd., Dedworth for BC. Boro E: G. S. Baker, MIMunE. *Orchard & Peer (London), Ltd., Wimbledon, SW19. £57,050.

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